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THE FLOWERING PLANTS

GRASSES, SEDGES & FERNS

OF

GREAT BRITAIN

AND THEIR ALLIES

THE CLUB MOSSES, HORSETAILS, &c

BY ANNE PRATT

NEW EDITION

REVISED BY EDWARD STEP, F.L.S.

ILLUSTRATED WITH

THREE HUNDRED AND NINETEEN COLOURED PLATES

FIGURING

UPWARDS OF 1500 SPECIES

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THE FLOWERING PLANTS

OF

GREAT BRITAIN

Order XXVII. ONAGRARIÆ—WILLOW-HERB TRIBE.

CALYX of 4, sometimes 2 lobes, which in the bud are attached to each other by their edges; calyx-tube more or less united to the ovary; petals as many as the lobes of the calyx, twisted while in bud, falling early; stamens 4 or 8, rarely 2; ovary of 2 or 4 cells, often crowned by a disk; style slender; stigma knobbed, or 4-lobed; fruit a berry, or 4-celled capsule. This order consists chiefly of herbaceous plants, rarely shrubs, found mostly in the temperate parts of the world. None of the plants contain unwholesome properties, but they contribute little either to medicinal or domestic purposes, though some of the species add largely to the beauty of our gardens. Several of our most common and ornamental flowers are included in it, as the Fuchsias, Clarkias, and Evening Primroses.

1. WILLOW-HERB (*Epilóbium*).—Calyx 4-parted, the lobes not combined after expansion; petals 4; stamens 8, 4 long and 4 short; capsule long, 4-sided, 4-celled, 4-valved; seeds numerous, tufted with long down. Name from the Greek *epi*, upon, and *lobos*, a pod; the flowers being placed at the top of a seed vessel, shaped somewhat like a pod.

2. EVENING PRIMROSE (*Œnothéra*).—Calyx 4-parted, the lobes more or less combined after expansion, and bent back; stamens 8; capsule 4-celled, 4-valved; seeds numerous, not bearded. Name in Greek signifying "catching the flavour of wine."

3. ISNARDIA.—Calyx 4-parted; petals 4, or none; stamens 4; capsule inversely egg-shaped, 4-angled, 4-celled, 4-valved, crowned with the calyx. Named after Antoine d'Isnard, a French botanist.

4. ENCHANTER'S NIGHTSHADE (*Circæa*). — Calyx 2-parted; petals 2; stamens 2; capsule 2-celled, each cell containing a seed. Name from Circe, the enchantress.

1. WILLOW-HERB (*Epilóbium*).

* *Petals unequal in size; stamens bent down.*

1. **Rose Bay, or Flowering Willow** (*E. angustifólium*). — Leaves scattered, lanceolate, veined, smooth; flowers somewhat spiked. Plant

perennial. A variety of this plant occurs very commonly in gardens, having larger flowers and shorter capsules, which is sometimes called *E. brachycarpum*; this is occasionally found as an escape from gardens. This Willow-herb is a rare plant in moist woods in England, though less so in Scotland. Some botanists have thought it to be not truly wild, but it has long established itself, and, in some woods, as in those about Wrington, in Somersetshire, whole acres of ground are covered with it; and it occurs in many parts of North Wales. It does not seem to have been common in Gerarde's time, for he mentions one place only where it might be found. "It groweth," he says, "in Yorkshire, in a place called the Hooke, neere unto a close, called the Cow-pasture, from whence I had these plants, which doe grow in my garden, very goodly to behold, for the decking up of houses and gardens." The old herbalist describes it as a "goodly and stately plant, having leaves like the greatest willow, or ozier. The branches," he says, "come out of the ground in great number, growing to the height of sixe foote, garnished with brave flowers of greate beautie, consisting of fower leaves apiece, of an orient purple colour." The variety so common in gardens, often, by its profusion there, occasions much trouble to the gardener, not so much by the seed which it produces, as the roots which creep to a great distance, and take a very firm hold of the soil; and if by chance the common form of the plant is introduced, as it often is, instead of the variety, it is far worse, as this bears seeds in abundance, and as each seed has a little silky feather attached to it, it wafts itself away over garden and shrubbery during August and September, and comes up in profusion in the following April. This plant is from four to six feet in height, bearing showy rose-purple flowers in August; its stem and flower-stalk are much tinged with lilac. It is called by gardeners French Willow, and in France one of its common names is *Laurier de St. Antoine*, after St. Anthony, the first founder of monastic institutions.

Rare as this plant is on the English landscape, yet in some countries towards the north of Europe, it, by its profusion and bright colour, gives during its season a characteristic feature to the landscape. The border of the lake near Tornea is described as beautified during summer with large masses of this plant, which towers over the brink of the water, displaying everywhere the most gaudy garlands, even on spots where vegetation in general seems dwarfed and barren. In Kamtschatka, this and other *Epilobiums* are exceedingly abundant, and mingle with most showy and brilliant species of groundsel (*Senecio*), to beautify large tracts of land. Both plants contribute greatly to the physiognomy of the landscape, for the groundsel plants, as tall as a man, and laden with flowers, frequently cover the meadows with a fine yellow colour; while a splendid red tint is given to wood-sides and rivers by the Willow-herb.

Both the English and scientific names of this genus are very appropriate. Several of the larger species, before coming into flower, closely resemble the rods of a willow in the first year of their growth, only that they are herbaceous instead of woody. The name *Epilobium* describes with much accuracy the position of the petals: *epi*, on, *lobos*, the long pod-like seed-vessel, which at first sight might be taken for a flower-stalk. It is quad-

1. ROSE-BAY WILLOW HERB
   Epilobium angustifolium
2. GREAT HAIRY W.H
   E. hirsutum
3. SMALL FLOWERED HAIRY W.H.
   E. parviflorum
4. BROAD SMOOTH LEAVED W.H.
   E. montanum
5. PALE SMOOTH L. W.H
   E. roseum
6. SQUARE STALKED W.H
   E. tetragonum
7. NARROW LEAVED MARSH W.H
   E. palustre
8. CHICKWEED L. W.H
   E. alsinifolium
9. ALPINE W.H
   E. alpinum

Pl. 78.

rangular in form, opening by four valves, and if when ripe it be carefully opened on one side, the seeds with their silky appendages burst from their prison.

This and some other of the species are well fitted for planting in shrubberies, as they are uninjured by the shade and frequent dripping of trees, and they thrive well in city gardens, unhurt by smoke. The leaves and stems of the Bay Willow afford a decoction, which is said to cause intoxication, and it is added to the fermented drink which the Kamtschatdales procure from the cow-parsnip. The pith has, when dried, a sweet flavour, and both ale and vinegar are commonly made from it in the north of Europe; while the young shoots both of this and some other species are, when dressed, a good and wholesome substitute for asparagus. Goats are said to be very fond of the plant, and both cows and sheep will eat it. The wool of the seeds, mixed with fur or down, has been manufactured into stockings, and into some kind of fabric intended for dresses, but this was too fragile to be of much use. The French call the Willow-herb, *L'Epilobe à épi* and *Osier Fleuri*, and the Germans, *Der Weiderich*. Its name among the Tartars is *Karamuk*, and the Russians term it *Xipree*.

* * *Flowers regular; stamens and styles erect; stigmas 4-cleft.*

2. **Great Hairy Willow-herb** (*E. hirsútum*).—Leaves partly clasping the stem, narrow, oblong, serrated, downy; stem downy, much branched; root creeping. Plant perennial. Our stream-sides, beautiful as they ever are with their rich verdure and many flowers, receive an additional ornament when, during July and August, this Willow-herb grows there in profusion, Most of the rills which trickle among our green meadows, and the streams and rivers which wind their silvery way, as well as the stagnant ditches, can then boast this ornament in more or less abundance. Often the purple blossom waving at a distance, on a hot summer's day, invites the wanderer to some cool sequestered spot, where he may feel as Chaucer did in such a scene:—

> "And the river which that I sate upon,
> It maden siche a noise as it ron,
> Accordant with the birdis armony,
> Methought it was the best melody
> That mighten bin y' hearde of any man.

The stems of this Willow-herb are much branched, so that the plant has somewhat the appearance of a shrub. The foliage, like most downy foliage, is of a greyish-green tint, and the large blossoms are reddish-purple. They have a very pleasant odour, like that of cooked fruit, hence a common country name for the flower is "codlins and cream." It never grows on a dry soil, but on river-brinks, and the sides of ditches.

3. **Small-flowered Hairy Willow-herb** (*E. parviflórum*).—Leaves sessile, lance-shaped, downy, and toothed; stem nearly unbranched, generally downy, but sometimes smooth. Plant perennial. This species has flowers of less size than the last, and is altogether a smaller plant; it is easily distinguished from it by its stem being branched only at the upper part; its stolons, too, afford a marked character, as they are not nearly so fleshy. It

grows usually to a height of between a foot and three feet, and has, in July and August, flowers of a purplish-red colour. It is very common on moist lands.

4. **Spear-leaved Willow-herb** (*E. lanceolátum*).—Leaves stalked, lance-shaped, irregularly toothed; stem obtusely angled; stigma slightly lobed; root fibrous and perennial. This rare species has been found near Tintern, Monmouthshire, in the neighbourhood of Bristol, and in various places ranging from Surrey to Cornwall. The flowers, though small, are numerous, of a pale rosy tint, and appearing from July to October. It is fond of rather stony ground, especially when accompanied by moisture.

5. **Broad Smooth-leaved Willow-herb** (*E. montanum*).—Leaves egg-shaped, acute, smooth, toothed, rounded at the base, the lower ones shortly stalked; stem slender, rounded, sometimes slightly downy. Plant perennial. This species grows commonly on dry places, as on shady hills and banks, and is often to be seen on the cottage-roof. It is a small and unattractive plant, its flowers being rarely fully expanded. They are of a purplish rose-colour, and of small size, though slightly larger than those of the next species. They are produced in June and July.

* * * *Flowers regular; stamens erect; stigma clubbed, not 4-cleft.*

6. **Pale Smooth-leaved Willow-herb** (*E. róseum*).—Leaves on stalks, smooth, egg-shaped, finely toothed; stem erect, imperfectly 4-angled; stigma undivided, or slightly lobed. Plant perennial. This Willow-herb is local, occurring more frequently in the south than in the north, near water, or in hedges and copses. It has very small rose-coloured flowers in July and August.

7. **Square-stalked Willow-herb** (*E. tetragónum*). — Leaves lance-shaped, sessile, and slightly toothed; stem with two, three, or four angles; stigma undivided. The small rose-coloured flowers of this species appear in July and August, and are not conspicuous, though the plant would, after flowering, attract attention by its long pod-like seed-vessels. Its stems are nearly smooth, and it is distinguished from the last species both by the more distinct angles of the stem, and by its narrower leaves without stalks. It is a very common plant in wet places; its stem is about one or two feet high, and it is in flower during June and July. The most common form of this produces its stolons in summer, and they have the leaves in scattered, opposite pairs; this form is also known as *E. obscurum*. The less frequent typical form has autumnal stolons, with leaves forming a rosette.

8. **Narrow-leaved Marsh Willow-herb** (*E. palústre*). — Leaves narrowly lance-shaped, entire, or toothed; stem rounded, erect, and nearly smooth; flower-buds nodding; root-stock with thread-like scions, which produce scaly buds in autumn. Perennial. This species has minute rose-coloured flowers in July and August. Its stem is from sixteen to eighteen inches high, and has often two downy lines on opposite sides. It grows in bogs, and near ditches and pools.

9. **Chickweed-leaved Willow-herb** (*E. alsinifólium*).—Leaves egg-shaped and pointed, very thin, smooth, and nearly sessile, the upper ones toothed, the lower entire; stem round. Plant perennial. This is a moun-

tainous plant, frequent on moist places of Scottish mountains, and in Durham and Westmoreland, having a few purplish-red flowers a third of an inch across; these appear in July. Its stem throws out slender suckers, with here and there a leaf upon them. It may be known at a glance from the other species, by its thin, flagging foliage.

10. **Alpine Willow-herb** (*E. alpínum*).—Leaves oval and blunt, on short foot-stalks, nearly entire; stems somewhat smooth. Plant perennial. This, too, is a plant of mountainous regions, where it grows by rills. It is common on all the Highland mountains, and extends south as far as Durham and Cumberland. In July it has two or three flowers, which droop while in bud, and are of bright purplish-red. It is a plant of much lower growth than any other species, the stem being much less than a foot in height.

2. Evening Primrose (*Œnothéra*).

Common Evening Primrose (*Œ. biénnis*). — Leaves lance-shaped, somewhat egg-shaped, toothed; stem slightly hairy; flowers large, sessile; stamens about the length of the corolla; capsules nearly cylindrical. Plant biennial. This pretty flower must be considered rather as naturalized than truly wild in this kingdom, neither is it at all a frequent ornament of our country scenery. On a few spots of sandy soil near Liverpool, on some of Sussex, and in many parts of Warwickshire, it grows and thrives far from the care of man. It is not mentioned by our earliest writers on plants; but Parkinson, who calls it the Tree Primrose of Virginia, names it in his "Garden of Pleasant Flowers," which was published in 1629. It is known to have been first sent from Virginia to Padua, in 1619, and probably found its way into England at about the same period. It is a frequent garden flower, opening its large primrose-coloured and somewhat fragrant blossoms about seven in the evening, just when the summer twilight is on its way. Its mode of expanding is very curious. The petals are held together at the summit by the attached tips of the calyx. The segments of this flower-cup at first separate at the base, and the yellow petals may be seen peeping through these openings, a long time before the flower is fully blown. The expansion is very gradual till the blossom is freed from the confinement of the calyx-tips; but when this is effected, it unfolds very quickly for a minute or two, and then stops; after which it opens very gradually, spreading itself out quite flat. The whole of this process sometimes occupies half an hour, and in some instances a little sudden noise is made as it jerks the topmost hooks asunder. The flowers hang next day in a discoloured and flaccid condition on the stem, and this circumstance renders the plant less attractive, as usually it has little beauty till evening. It sometimes, however, varies from its ordinary habits, and a blossom or two may occasionally be seen fully open even at noonday. The French call the Evening Primrose *L'Onagre;* and it is the *Nachtkerze* of the Germans, and the *Tweejaarige* of the Dutch. The Hungarians call it *Viola.* It was formerly termed *Onagra,* the "ass food," by botanists; and its name was changed to a word signifying wine-trap, because the roots have been used as incentives to wine-drinking, and were formerly eaten after dinner, as olives are at the present day. The roots,

as well as those of several other species of *Œnothera*, contain much nutriment, and the root-stock is almost as good as the potato. Perhaps we owe some of the wild plants which occur on our landscape to the former cultivation of the flower for the sake of these root-stocks, which were once much valued, and which would probably have retained their place at the modern table, had not the potato become so general and accessible. They still, in some countries, form a common article of food.

The Evening Primrose grows to the height of two or three feet, beginning to flower about July. The uppermost blossoms expand first, and there is a constant succession of pale yellow flowers, till the end of autumn. Many of the garden species are much larger and handsomer than this. *Œnothera* is quite an American genus, all but one (Tasmanian) member of this family having been brought from the New World.

3. Isnardia.

Marsh Isnardia (*I. palústris*).—Leaves opposite, egg-shaped, acute, and stalked; stem procumbent, rooting, and smooth; flowers solitary and axillary; capsule 4-angled. Plant annual. This little herb has stems about six or eight inches long, and flowers which have pistils and stamens, but which are destitute of petals. It is very rare, having been found in a pool at Buxstead, in Sussex, and on Petersfield Heath, in Surrey, where it occurred in abundance. It also grows near Brockenhurst, in Hampshire, and in Jersey. It was formerly recorded as a British plant, but was again lost in this kingdom, though known as a plant of various parts of Europe and America, as far south as Mexico. Mr. Borrer, in 1827, rediscovered it in Sussex. Some authors call it *Ludwigia palustris*.

4. Enchanter's Nightshade (*Circæa*).

1. **Common Enchanter's Nightshade** (*C. lutetiána*).—Leaves egg-shaped, tapering to a point, toothed; bracts none; stem erect, downy; calyx hairy; root perennial. This is a very common plant in lanes where the thick bushes or high trees cast a deep shadow, and in shrubberies, woods, and gardens. The stem is about a foot or a foot and a half high; and the dark green leaves, somewhat heart-shaped at the base, are very large in proportion to the blossoms. It is very troublesome in damp gardens, on account of its strong creeping roots; and the two-petalled flowers are too small to render the plant ornamental in any situation. They appear in June and July, are white or pale rose-colour, with pink stamens, and are destitute of odour.

The genus *Circæa*, though named after the enchantress Circe, does not appear ever to have been used in enchantments, and it has no active properties either of a useful or deleterious kind. Some writers think that the name was given because many of the dark shady nooks in which it grows are such places as would be chosen for incantations by the pretender to magic, in order that their gloom might affect the imagination of his victims. Boerhaave ingeniously suggested that the fruit, which is clothed with hooked bristles, laying hold of unwary passengers, and clinging to them, might, to him who

1 EVENING PRIMROSE
Œnothera biennis

2 MARSH ISNARDIA
Isnardia palustris

3 ENCHANTER'S NIGHTSHADE
Circæa lutetiana

4 ALPINE C. N.
C. alpina

named the plant, have been suggestive of the practices of the fabled Circe, who drew the unguarded into her toils; but neither notion seems probable, and the origin of the name is involved in mystery. The French call the plant *La Circée;* the Germans, *Das Hexenkraut;* the Dutch term it *Stevenskruid.* The ancient Greeks had a plant which they called *Circæa.* Our common plant is one much used by the leaf-cutter bees in the construction of their cells. Everyone observant of garden flowers must have seen how often little semicircular pieces are neatly cut out of the leaves of the garden roses; and the leaves of several wild flowers are subject to the same depredations. The perennial mercury, three species of willow, the sweet briar and dog rose, the barren strawberry, and our Enchanter's Nightshade, are among the wild plants chiefly selected; while, in the garden, the Provence, Frankfort, and monthly roses are sought by these insects, that they may hang their cells with the green tapestry taken from the foliage. Baxter tells us that the caterpillar of the elephant hawk-moth (*Chœrocampa elpenor*), which feeds chiefly on the water bed-straw (*Galium palustre*), sometimes regales itself also on the Enchanter's Nightshade.

2. **Alpine Enchanter's Nightshade** (*C. alpina*).—Leaves heart-shaped, toothed, nearly smooth; stem ascending, nearly smooth. Root perennial. This species much resembles the last, but is smaller, and less branched. It is found in woods, thickets, and stony places, especially near the lakes in the north of England and Scotland. Its flowers occur in July and August. Its leaves are remarkable for their thin and delicate texture. Some botanists describe a third species as *C. intermedia*, which in some specimens appears to be a variety of the first of the species, in others of the last.

Order XXVIII. HALORAGEÆ—MARE'S-TAIL TRIBE.

Calyx tube adhering to the ovary, and either expanding into three or four minute lobes, or forming simply a rim; petals either minute, and placed at the mouth of the calyx, or wanting; stamens either equalling the petals in number, or twice as many, or, when petals are wanting, one or two in number; ovary with one or more cells; stigmas equal in number to the cells of the ovary; capsule not opening; seeds solitary, pendulous. The order consists of herbaceous plants of little beauty, and possessing no important properties. In several species the stamens and pistils are in separate flowers.

1. MARE'S-TAIL (*Hippúris*).—Calyx forming a minute, indistinctly 2-lobed rim to the ovary; petals 0; stamen 1; style 1; seed 1, nut-like. Name in Greek signifying a horse's tail.

2. WATER MILFOIL (*Myriophyllum*).—Stamens and pistils in separate flowers, but on the same plant; calyx 4-parted; petals 2 or 4; stamens 2 to 8; styles 4; fruit of 4 nut-like seeds. Name from the Greek *myrios*, ten thousand, and *phyllon*, a leaf, from its numerous leaves.

3. WATER STARWORT (*Callitriche*).—Flowers without calyx or petals, often with 2 bracts at their base; stamen 1; anther 1-celled; styles 2; ovaries 2,

each 2-lobed; fruit of four 1-seeded carpels. Name in Greek signifying beautiful hair, from the hair-like roots.

1. Mare's-tail (*Hippúris*).

Common Mare's-tail (*H. vulgáris*).—Leaves linear and whorled; stem erect, jointed, without branches. Plant perennial. This singular plant would not fail to attract notice when abundant, as it often is in ponds and ditches. It grows frequently also on the borders of slow streams, especially such as have a gravelly base. It is tall and slender, rising ten or twelve inches above the water, and very well deserving its common French name of *Pin d'eau*, or the no less expressive German one of *Schaftholm*. The flowers are inconspicuous, small and green, appearing in May and June close to the stem, in the angles which it forms with the short whorled leaves. This is remarkable as being one of the simplest of herbaceous plants, sometimes having a mere rim for its calyx, having no petals, and but one stamen, one pistil, and one seed. When the plant has flowered it sinks down and dies, and its stems and leaves form a mass at the bottom of the water.

Like many another aquatic plant, the Mare's-tail has its uses, not alone to water animals, as the freshwater snails and insects, not only to the wild ducks and water-fowls which hail it as a welcome repast, but also to man. It renders the neighbourhood of stagnant water less prejudicial to human health, by absorbing a great quantity of noxious gas, thus serving to purify an atmosphere rendered putrid by the exhalations of the pool. In deep water it attains considerable luxuriance, and is sometimes three feet in height.

There is no other plant with which the Mare's-tail could possibly be confounded, save some of the horse-tails, those allies of the ferns, and many of which abound in moist places. It is, however, essentially distinct, for the horse-tails have no flowers, and bear their fructification in cones or catkins at the tops of their stems or branches. Their leaves, too, are longer and more rigid, those of this herb being short and clear, with a thick strong vein running up the centre. The Dutch call this plant *Kattestail*, and the Italians term it *Ippuride*.

2. Water Milfoil (*Myriophýllum*).

1. Whorled Water Milfoil (*M. verticillátum*).—Flowers all whorled, having bracts at their base, cut into slender segments, and longer than the flowers. Plant perennial. This aquatic can boast no brightness of corolla, its greenish petals being too small to attract observation. It is, however, very pretty in its greenness, and in the graceful form and movement of its feathery leaf-like bracts, which lie like green threads in the water, and are swept downwards if perchance a wind stirs up a current in the still pool.' The plant well merits its name of Myriad-leaf, as well as its German name of *Fenderball*. The French call it *Volant d'eau*, and the Dutch *Vederkruid*. The Milfoil is common in many of the pools and ditches of Europe; and this species is frequent in such places throughout England and Wales. Mr. Backhouse found a Milfoil growing with some of the pond-weeds (*Potamogeton*) in the waters of New South Wales, and believed it to be identical with the English species.

1. MARE'S TAIL.
   Hippuris vulgaris
2. WHORLED WATER MILFOIL.
   Myriophyllum verticillatum
3. SPIKED W. M.
   M. spicatum
4. ALTERNATE FLOWERED W. M.
   M. alterniflorum
5. WATER STAR-WORT.
   Callitriche verna
6. PEDUNCULATED W. S. W.
   C. pedunculata
7. AUTUMNAL W. S. W.
   C. autumnalis

2. **Spiked Water Milfoil** (*M. spicátum*).—Flowers whorled, longer than the bracts at their base, which form an interrupted leafless spike; stem slender and branched. Plant perennial. This is a common plant in standing pools, where it forms entangling masses by its slender stem and branches, which, when we take them from the water and shake them, drop numerous little living creatures, that have evidently found a home amid the leaves and bracts. The whole plant looks very green and pretty, as it lies in the water, where it floats below the surface, save when in July and August its spikes of minute greenish flowers rise just above the pool. These spikes are from three to five inches long, and the leaves, which are four in a whorl, are cut into slender segments.

3. **Alternate-flowered Milfoil** (*M. alterniflórum*). — Barren flowers arranged alternately on a short leafless spike; fertile flowers about three together, in the axils of the leaves at its base; spikes drooping when in bud. Plant perennial. This rare species occurs in a few places in England and Scotland in ponds and ditches, its small green-flowers appearing from May to August. It is very similar to the last species, but is more slender, and its flowers are less abundant.

3. Water Starwort (*Callítriche*).

1. **Vernal Water Starwort** (*C. vérna*).—Leaves in pairs, united at the base; flowers in the axils of the leaves, usually containing one stamen or one pistil only, but occasionally both organs; carpels bluntly keeled at the back. Plant annual. This little Starwort is abundant in ditches, pools, and slow streams, everywhere, and is often probably mistaken by those little familiar with plants, for some species of bedstraw (*Gálium*). Its shoots are most truly starry, the leaves being crowded on the top of the slender stem, and often the plant when in masses forms thick tufts like green cushions in the pools lying among the grass of marshy lands. The verdure is of emerald hue, and numerous little white hair-like shining roots proceed from the joints of the stem, forming a characteristic feature of the Starwort. The foliage is submersed, but the stamens of the little green flowers in June and July rise just above the surface of the water. The Starwort is called by the French *La Callitric*, and by the Germans *Wassersten*. It is the *Callitrica* of the Italians, and the *Sterrekruid* of the Dutch. Several varieties or sub-species are described, one having the lobes of the fruit slightly keeled, another with the lobes slightly winged at the back.

2. **Pedunculated Water Starwort** (*C. pedunculáta*). — Fruit-stalks without bracts at the base; fruit 4-sided, each lobe bluntly keeled at the back. Plant annual. This rare species is very nearly allied to the last, of which it is probably a sub-species. It is found in ditches in Sussex, and some other English counties, as well as in Wales, producing its inconspicuous flowers somewhat earlier than *C. verna*.

3. **Autumnal Water Starwort** (*C. autumnális*).—Fruit-stalks very short, without bracts; fruit somewhat 4-sided, each lobe winged at the back. Plant annual. This species occurs about London, in various lakes from Scotland to Devonshire, and in Ireland. It flowers in June and July. A variety known as *C. truncata* is distinguished by having its fruit keeled.

Order XXIX. CERATOPHYLLEÆ—HORNWORT TRIBE.

Stamens and pistils in separate flowers, but on the same plant; calyx many parted; corolla none; stamens 12—20, without filaments; anthers 2-pointed; ovary 1-celled; style curved; seed-vessel nut-like, 1-seeded, not opening. This is an aquatic order, containing only the genus Hornwort, which is very distinct from any other known plant. The affinities of this order have been much disputed by botanists.

HORNWORT (*Ceratophýllum*).—Characters those of the order. Name in Greek signifying horn-leaved.

HORNWORT (*Ceratophýllum*).

1. **Common Hornwort** (*C. demérsum*).—Fruit armed with two thorns near the base, and terminated by the curved style. Plant perennial. Our illustration will remind all accustomed to roam in the country of a plant which they often see lying in slow streams and ditches. This Hornwort grows quite under the water, and being unlike most other plants in the cone-like form which its mass of crowded leaves often assumes, it will hardly fail to be noticed, though no bright corolla adds grace to its verdure. The whorled leaves, rigid as bristles, are two or three times forked, and somewhat serrated; they are often also inflated and jointed. The green flowers grow in whorls in the axils of the leaves. The plant has no known uses, except that it aids with other aquatic vegetation in purifying the water, by absorbing carbonic acid and giving off oxygen. Some varieties of this plant have, by various botanists, been described as species; in one, the spines of the fruit are long, rigid, and rounded; in a second, they are also long but flattened, and winged at the base; a third variety has no spines on its fruit, but two tubercles at its base. The first of these is most common in this country.

2. **Unarmed Hornwort** (*C. submérsum*).—Fruit without either spines or tubercles, and ending with the very short styles. Plant perennial. This species much resembles the last, and can be known from it only by the character of its fruit. It is rare, being found only in the pools and ditches of the south of England, its flowers appearing in June and July. It is probably only a sub-species of *C. demersum*.

Order XXX. LYTHRARIÆ—LOOSESTRIFE TRIBE.

Calyx of one piece, often tubular, 3 to 6-parted, sometimes with intermediate teeth; petals inserted between the outer divisions of the calyx, soon falling off; stamens springing from the tube of the calyx, within the petals, and either equalling them in number, or twice, thrice, or four times as many; ovary 2 to 6-celled; style single; capsule many-seeded, covered by the calyx, but not united to it. This order consists chiefly of herbaceous plants, having mostly four-sided stems, and opposite leaves. Many of the species are astringent, and several are used by dyers. The celebrated *Henna* or *Alhanneh* of the Arabs is furnished by a plant of this order, the *Lawsonia alba*. The paste made of its pounded leaves is used by the Egyptians, Arabs, and

Turks to impart a yellowish red hue to their nails. The practice is of high antiquity, for the nails of the mummies have evidently received this tinge.

1. PURPLE LOOSESTRIFE (*Lýthrum*).—Calyx cylindrical, with 8 to 12 divisions, alternately smaller; petals 4 to 6; stamens 8 to 12; style thread-like. Named from the Greek *lythron*, blood, from the hue of the flowers.

2. WATER PURSLANE (*Péplis*). — Calyx bell-shaped, with 12 divisions, alternately smaller; petals 6, minute, soon falling off; stamens 6; style very short. Name of Greek origin, and anciently given to another plant.

1. PURPLE LOOSESTRIFE (*Lýthrum*).

1. **Purple Loosestrife** (*L. salicária*).—Leaves opposite, or about three in a whorl, long and narrow, heart-shaped at the base; flowers whorled, and forming a leafy spike. Plant perennial. This Loosestrife is among the handsomest of our native flowers, rivalling the foxglove and viper's bugloss in beauty. Its blossoms appear in June and July, forming tall tapering spikes, sometimes a foot long, on a stem which is from two to four feet in height. The colour is of rich purplish red, and when these gay pyramids rise up, as they often do, above the sedges, and rushes, and willow boughs which fringe the water, they render the margin most beautiful, and may be seen far away over the landscape. The plant is called by several country names, as Grass-poly, Purple Grass, and Willow Lythrum. It is in many counties called Long Purples; and Clare in several of his poems alludes to it under that name:—

> "As shadowy April's suns and showers would pass,
> And summer's wild profusion plenteous grew,
> Hiding the spring-flowers in long weeds and grass,
> What meads and copses would I wander through,
> When on the water oped the lily buds,
> And fine Long Purples shadowed in the lake,
> When purple bugles peeped in the woods
> 'Neath darkest shades that boughs and leaves could make."

Additional interest has been given to this species in recent years by the discovery that the flowers are "trimorphic"—that is, three separate plants may yield us flowers differing from each other in the length of their style; but really there are six forms. No. 1 may have a long style accompanied by stamens of medium length and yellow pollen grains of medium size. No. 2 will also have a long style, but its stamens will be short and its yellow pollen grains smaller than those of No. 1. No. 3 has a style of medium length, long stamens and large grains of green pollen. No. 4, medium style, short stamens, and small yellow pollen. No. 5, a short style, long stamens and large green pollen. No. 6, a short style, medium stamens and medium yellow pollen. These differences have very direct relation to the fertilization of the seed-eggs by the agency of bees, the pollen of one flower being useless for the fertilization of its own seeds. The pollen grains of Nos. 2 and 3, for instance, will only serve for fertilizing the short-styled Nos. 5 and 6, and thereby a healthy cross between individuals of the same species is assured.

This Loosestrife grows in all parts of this kingdom, and is very general on the Continent. It occurs in great profusion in the streams and ditches

about Brussels, especially near Laerken, the king's country palace. The French, Italians, and Spaniards call it *Salicaire;* the Germans term it *Braune weiderich;* the Dutch, *Partyke;* and the Russians, *Plakun.* The streams about Australia are as gay in summer with its crimson blooms as are our own watersides; and the same, or a very similar species, blooms on the borders of lakes in Mexico. In the latter country several species of Lythrum are found, and they are very generally used as applications to wounds. Our own Grass-poly is very astringent and tonic, and has been recommended by De Haen and other continental physicians for intermittent fevers. Though it has long been celebrated in Ireland for its remedial uses, it is rarely prescribed in England by regular practitioners. Its leaves contain tannin, and have been used with success in the preparation of leather. In India the flowers of the *Lythrum hunterii* are mixed with the blossoms of the *Morinda,* and are then called *Dhawry,* and commonly used as a dye.

2. **Hyssop-leaved Purple Loosestrife** (*L. hyssopifólium*).—Leaves mostly alternate, linear-lanceolate, blunt; flowers axillary, solitary; bracts 2, very small, and awl-shaped; stamens about 6. Plant annual. This species is so unlike the last in its general appearance, that only the botanist would perceive the affinity of the two. It is a lowly plant, about four or five inches high, having a few little blossoms growing singly between the leaves and stem. They are of a dull purplish-lilac colour, expanding in July. This may occasionally be seen growing with the taller Loosestrife at the edge of the water, but is more likely to be found in bogs or among the grass of woods which have standing pools among their trees. It is not anywhere a common flower, but the author found it some years since in some profusion in Eridge woods, near Tunbridge Wells, and it has been recorded from Herts, Cambs, Northants, Norfolk, and Cornwall.

2. Water-Purslane (*Péplis*).

Common Water-Purslane (*P. pórtula*). — Leaves inversely egg-shaped; flowers solitary. Plant annual. Those who were intent on gathering a wild nosegay would leave this little aquatic untouched, or probably pass it by unnoticed. It grows either on moist lands or on places sometimes overflowed by water, having often a reddish tinge on its stems and leaves. It is a lowly creeping plant, and not unfrequent; its stems being from four to six inches long, with few branches. Its small green flowers, often without petals, appear in July and August.

Order XXXI. TAMARISCINEÆ—TAMARISK TRIBE.

Sepals 4—5, overlapping when in bud, remaining after the corolla is withered; petals 4—5 from the base of the calyx; stamens either equal to the petals in number, or twice as many, distinct or united by their filaments; ovary not combined with the calyx; styles 3; capsule 3-valved, 1-celled, containing many seeds, which have downy tufts at the extremity. The plants of this order are mostly shrubs, with long slender branches and small scale-like leaves. They are very numerous on the shores of the Mediterranean

1 SPIKED PURPLE LOOSESTRIFE
Lythrum salicaria
2 HYSSOP LEAVED P.L.
L. hyssopifolium
3 WATER PURSLANE
Peplis portula
4 ENGLISH TAMARISK
Tamarix gallica
5 RED BERRIED BRIONY
Bryonia dioica

thriving well by the sea or on the saline soils of deserts. The bark is astringent, and many species are remarkable for the large quantity of sulphate of soda afforded by their ashes.

TAMARISK (*Támarix*).—Calyx 5-parted; petals 5; stamens 5 or 10; stigmas feathery. Named from the Tamarisci, the people who inhabited the banks of the Tamaris, now the Tambra, in Spain, where this plant is in great abundance.

TAMARISK (*Támarix*).

Common Tamarisk (*T. gallica*).—Leaves quite smooth, somewhat narrowed at the base; flower-buds egg-shaped; capsule rounded at the base and narrowed upwards. Plant perennial. This pretty shrub is very ornamental to many parts of our coast, with its rich deep verdure, and its delicate red branches clothed, in July, with elegant spikes of pale rose-coloured flowers. It is very common in seaside gardens, and in many places by the sea grows in profusion, without culture, on rocks, cliffs, and sandy soils. Truly wild, however, the plant is not, in any part of the kingdom; for although it is abundant in some places, as at Hastings and Sandgate, it was doubtless originally planted there. It is often said to be wild in Cornwall, as Tamarisk shrubs abound about the Lizard and along the south coast, having probably been brought thither from the opposite coast of France. The plant is said to have been introduced into the Lizard district by a carter, who, having lost his whip, gathered one of the long flexible branches of the Tamarisk at St. Michael's Mount, which, at the conclusion of his journey, he stuck into the ground, where it grew and flourished. Nor is this an unlikely mode of its propagation, for it grows from cuttings as freely as the willow.

Fuller, in his "Worthies of England," remarks:—"The Tamarisk was first brought over by Bishop Grindal out of Switzerland, where he was an exile under Queen Mary, and planted in his garden at Fulham, where the soil, being moist and fenny, well complied with the nature of this plant; yet it groweth not up to be timber, as in Arabia, though often to that substance that cups of great size are made thereof." Richard Hakluyt also says that in his time the plant had so increased that there were thousands of the trees in this country, and adds, "Many people have received great health by this plant." This writer published his work in 1582. In those days the cup made of Tamarisk was thought to improve the flavour of ale; the spit made of its wood imparted an excellence to the meat roasted upon it; and its use was considered so beneficial to persons afflicted with diseases of the spleen, that physicians ordered patients to eat from dishes made of Tamarisk wood. It also had other domestic uses, as Browne in his "Pastorals" refers to it—

> "Amongst the rest, the Tamarisk there stood,
> For housewives' besoms onely knowne most good."

And Pliny mentions its use for brooms by the Romans. Dioscorides praised it as a cure for every disease. It is the *Myrica* of the Greeks and Romans; and to the reader of the Classics is connected with many poetic associations. "It is so referred to," says Mr. Baxter, "in the Pastorals of Theocritus and Virgil, and many times in the Eclogues of the latter poet; Ovid also names

it in several poems." Homer mentions it as the tree against which Achilles laid his spear before he rushed into the Xanthus to pursue the fleeing Trojans :—

> "So plunged in Xanthus, by Achilles' force,
> Roars the resounding surge with men and horse ;
> His bloody lance the hero cast aside,
> Which spreading Tamarisks on the margin hide."

Evelyn says that it was considered one of the unfortunate trees, and gives that as the reason why its branches were in ancient times bound around the head of the criminal. It is in England commonly called Sea Cypress ; but though its foliage somewhat resembles that of the cypress, its mode of growth, pale hue, and deciduous habit make it quite distinct even to the unscientific eye.

The Tamarisk has associations with scenes and times even earlier than those of the Roman or Greek writers, for there is little doubt that it is the *Eschel* or *Ashel* of the Scripture. The passage rendered in our Authorized Version, "Now Saul abode in Gibeah, under a tree in Ramah," is translated by Boothroyd, "Saul was sitting on a hill in Gibeah, under a Tamarisk-tree" —a rendering thought by Dr. Kitto to be the correct one. The author remarks that Saul preferred holding his court under the shadow of a tree, as many an Oriental prince of modern days would do. This, too, is thought to be the tree under which Saul and his sons were buried. Almost all travellers in Eastern countries speak of the Tamarisk-tree as the *Athel* or *Atlé* of the Orientals. It is one of the very few trees which will flourish and attain a good size in the soil of the desert. Large Tamarisks, called Asul, are found all about Palestine, not graceful and slender as are those of our country, but tall and sturdy as oaks. The exact species of Eastern Tamarisks are not ascertained ; but if not mere varieties of our English species, they are very nearly allied to it, and all have many points of similarity. The tree has long been highly prized by the Arabs for the medicinal uses of the galls which grow on its branches. The Tamarisk was called *Toorfa* by Avicenna, and its astringent galls are praised in his works ; they are also used in dyeing. In Egypt these trees are as large as oaks. Sonnini tells us that not a village of Lower Egypt is without its Atlés. "There is," says this writer, "no other tree in the land which can in any degree be termed common. It furnishes the timber for mechanical purposes, and wood for fuel. Hence the Egyptians say, 'the world would go badly with them if Atlés were to fail.'" They also make their bowls and drinking-cups of its wood.

Another interesting association connected with the Tamarisk is, that it is the only tree now found growing amid the ruins of Babylon. Ker Porter thought that he discovered some traces of the celebrated hanging-gardens, and on an artificial mound there stood a tree which the Arabs called *Athelu*. It was hollow with age, and its branches bending downward gave to it the aspect of a weeping willow. The boughs were graceful and richly verdant, though its large trunk was old and rugged. Some travellers have described this lonely relic of the ancient grandeur—this solitary tree—as a cedar, others as a willow ; but Aucher, in 1835, gathered some specimens which he

preserved, and which were considered by botanists to be the *Tamarix pycnocarpus*. The Arabs regard this tree as sacred, because, after the battle of Hillah, the Caliph Ali reposed under its shade. It is thought to be as old as the time of Herodotus, B.C. 440.

Our *Tamarix gallica* is a native of most of the countries of southern Europe, of Asia Minor, Tartary, Japan, Barbary, and Arabia, as well as of many parts of Africa; and some other species, as the Eastern Tamarisk (*T. orientalis*), are also common in these lands. A variety of our Sea-side Tamarisk affords, according to Ehrenberg, the manna of Mount Sinai. This manna, as it is called, because it is supposed to resemble the manna of the Scriptures, drops during the month of June from the branches and twigs beneath the tree, where it coagulates. If left till after sunrise it dissolves, and is lost. The Arabs, therefore, collect it before dawn. It is a sweet and pleasant substance, which the Arabs prize greatly, and pour over their bread as if it were honey. Falling in small quantities, it is a very costly luxury. This manna probably no more resembles the "Bread of Heaven," given in the wilderness, than does the substance called manna in this country, and sold by the druggists for medicinal purposes. This is the product of an ash-tree, *Ornus europæa*.

Order XXXII. CUCURBITACEÆ—GOURD TRIBE.

Stamens and pistils often in separate flowers, either on the same plant or on different plants; calyx 5-toothed, connected with the corolla; corolla often scarcely to be distinguished from the calyx; stamens 5, more or less united; anthers twisted; ovary imperfectly 3-celled; style short; stigmas lobed; fruit more or less succulent; seeds flat, in a juicy arillus, or skin.

The Gourd Tribe consists of a large number of important climbing herbaceous plants, having succulent stems and tendrils. In many cases their medicinal properties are very violent, but some plants of the tribe produce valuable fruit. To this order belong the Gourds, the fruits of which are, in Arabia, Egypt, and other countries, converted into bowls and other articles of domestic use; the Bottle-gourds (*Lagenaria*) seeming exactly formed for this purpose, being shaped like flasks, and sometimes six feet long; when young they are used as spoons. The plants are of rapid growth, and the Common Garden Pumpkin increases so rapidly in size, that with its long shoots it will, in a good soil, in one season cover the eighth part of an acre. This is extensively cultivated in some parts of France to use in soups and fricassees. The Vegetable Marrow is often seen on our tables; the cool and refreshing Melons and Cucumbers in all their varieties afford us valuable edible fruits; while in hot countries Water Melons are among the most refreshing articles of diet. The Germans eat the fruit of the Squash Gourd, which, from its shape, they term the Elector's Hat; and Cucumbers in Russia are deemed a most necessary vegetable diet. The Colocynth and Squirting Cucumber furnish powerful drugs; and the plant mentioned in Scripture as the Wild Vine, from which the sons of the prophets gathered gourds for Elisha at Gilgal, is believed to be the Ass, or Wild Cucumber, a plant of this order, which is very bitter. As it resembles the cultivated cucumber it was apparently

gathered by mistake, and its bitterness induced the men who procured it to consider it deleterious, bitterness in a vegetable indicating, in the ideas of the Hebrews, the presence of poison. Our Red-berried Bryony is the only British genus contained in this order.

BRYONY (*Bryónia*).—Stamens three; style 3-cleft; fruit, a globose berry. Name from the Greek *bryo*, to bud, from its rapid growth.

BRYONY (*Bryónia*).

Red-berried Bryony (*B. dioïca*).—Leaves palmate, rough on both sides; pistils and stamens on different plants. Plant perennial. A very pretty climber is this Wild Bryony in early spring, when its half-developed leaves are of a delicate green hue, and its unfolding shoots grey with long silvery hairs. But as the months advance these leaves grow out into large vine-like foliage, and become of a deep rich green hue, covered with thick prickly hairs, and the long shoots armed with branching tendrils wind their way along the bushes, occupying no small space in the green hedgerow:—

> "The scallop'd Bryony mingling round the bowers,
> Whose fine bright leaves make up the want of flowers."

The blossoms, which may be seen from May to September, add little to the beauty of the plant, for though they are large, yet their greenish white petals, marked with darker veins, have nothing very attractive in appearance, and are also destitute of perfume, save such faint and sickly odour as might suggest the idea that they belonged to a poisonous plant: nor would the inference be altogether wrong. The root partakes of that powerful drug yielded by the Colocynth, and the round red berries, which are in autumn amongst our most beautiful wild fruits, are poisonous, while the whole plant abounds with a fetid and acrid juice. The root is very large and succulent, and to this accumulation of nutriment Linnæus attributed the quick growth of the Bryony. Gerarde mentions having seen one as large as a child six months old, weighing half a hundredweight, but this was unusually large. These roots were formerly much prized as a remedy for dropsy, but are not now administered by medical men internally, though Professor Burnett records that they were a few years since still sold at Covent Garden market, and used by the pugnacious to remove the blackness "which follows blows too vigorously applied in the neighbourhood of the eyes." The root, however should not be used even externally when in a fresh state, or it would blister the skin. The acrimony is partly removed by drying. The writer just alluded to says, "Bryony root has also been often used, when cut in slices, to mix with calumba-root, a vile adulteration, as the properties of the drugs are most dissimilar." He adds, that the most serious consequences might ensue from its use in cases in which a tonic like the calumba is required. The fraud is considered by medical practitioners to have originated in the belief which once prevailed, that calumba was the root of *Bryonia epigæa*, which it is said to resemble, and which in India is used instead of it. Our old herbalists praise the Bryony root as an invaluable external and internal remedy, though, according to their own admission, it was "a furious martial plant." Among other ways of using it, it was commonly made into an

electuary for coughs, but it must have been a most dangerous medicine, unless used, as it is by modern homœopaths, in tiny globules. Culpepper—

> "As one that on his worth and knowledge doth rely
> In learned physic's use, and skilful surgery"—

after recommending it for various maladies, cautiously adds, "When it must be taken inwardly it needs an abler hand to correct it than most country people have, therefore it is a better way for them to leave the simple alone, and take the compound water of it mentioned in my 'Dispensatory,' and that is far more safe, being wisely corrected." Those, however, are most safe who leave the plant altogether out of their list of remedies; but country people still have a strange belief that vegetable medicines are never dangerous, forgetting that hemlock, aconite, and other plants, contain most deadly poison. Villagers are often so ignorant of the nature of the plants which they use as remedies, that the author has more than once had much difficulty in dissuading persons from taking most powerful and most unsafe decoctions of wild plants.

This Bryony is commonly called also Wild Vine, or Wood-vine, and in some countries, where hops are not cultivated, it is called Wild Hop. One of its old names was Tetterwort. Though so common in England, it is rare in Scotland. It grows wild in many European countries, and is called by the French *Bryone*, or *Couleavrée;* it is the *Zaunrübe* of the Germans; the *Bryone* of the Dutch; and *Brionia* of the Italians; the Portuguese term it *Norca bianca.* The goat is the only animal which feeds on its foliage; but Dr. Withering says, that a decoction of the fresh root is an excellent medicine for horned cattle, and that it is a common practice in Norfolk to mingle small pieces of this root with corn in order to render their coats glossy and fine. Other physicians consider that it might be used medicinally with great advantage, as several foreign species are valuable medicines of other countries. The seeds of *Bryonia callosa,* a common plant in India, afford an excellent oil, much used for burning in lamps.

Order XXXIII. PORTULACEÆ—PURSLANE TRIBE.

Calyx of 2 sepals, united at the base; petals usually 5 from the base of the calyx; stamens 4 or more inserted with the petals; ovary 1-celled; style 1 or 0; stigmas several; capsule 1-celled, opening transversely, or by 3 valves; seeds usually more than 1. This order consists of herbs or shrubs with very succulent leaves and stems. The species are all innocuous, and in many cases edible. *Portulaca sativa* is the Common Purslane, and is cultivated and much liked as a vegetable in several continental countries. The *Da-t-kai* of Caffraria, celebrated among the Hottentots for its edible roots, is a Purslane; and Mr. Burchell remarks that an abundance of the Common Purslane is to be found everywhere on the Asbetos mountains, and that he ordered a quantity to be boiled for his dinner, as it rarely happened that he could convert the wild vegetation of that country to culinary uses, the heat rendering plants so tough and juiceless, that they were unfit for eating. He remarks that this Purslane is one of the few plants whose seeds have been scattered in various

and very different parts of the earth. The rocky hills of St. Helena are in the rainy season rendered verdant by this plant alone. Several species of the family have large and handsome flowers; but its only native representative in Britain is an inconspicuous plant.

1. BLINKS (*Móntia*).—Calyx of 2 sepals; corolla of 5 petals, 3 smaller than the others, and all united at the base; tube of the corolla split to the base; capsule containing 3-dotted seeds. Name from Joseph de Monti, a botanist of Bologna.

2. SPRING BEAUTIES (*Claytónia*).—Sepals 2, oval, persistent. Petals 5, usually clawed, and joined at the base. Stamens, 5 attached to base of petals. Style, 3-cleft at apex. Capsule 1-celled, opening by 3 valves and containing a few seeds. Name from Dr. J. J. Clayton, an American botanist.

1. BLINKS (*Móntia*).

Water Blinks (*M. fontána*).—Leaves opposite, tapering at the base. Plant annual. This lowly chickweed-like plant varies much in size, but is always remarkable for its succulence. It flowers from June to August; its small white blossoms, drooping at first, and scarcely ever expanding, acquired for it the name of Blinks. It is abundant in wet places throughout the country. Linnæus, who found it in Lapland, remarks that it was a plant which had never come in his way before. "In Kalhëden," he says, "I found it particularly abundant, and I afterwards found it in West Bothnia." The French call this plant *La Montie;* the Germans, *Die Quellenmonti.* It is the *Bronminnende montia* of the Dutch.

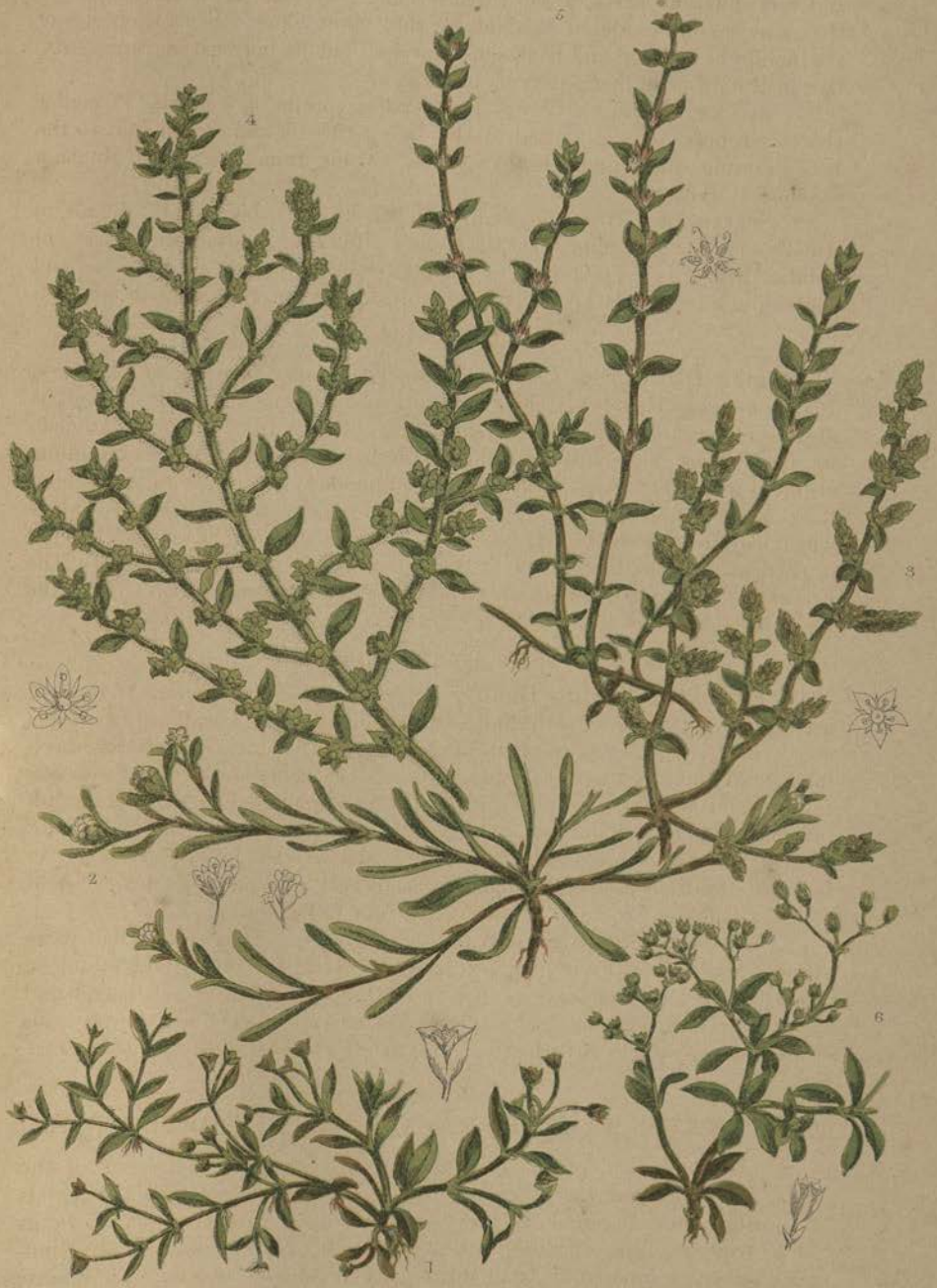
2. SPRING BEAUTY (*Claytónia*).

1. **Perfoliate Spring Beauty** (*C. perfoliáta*).—Root fibrous. Radical leaves, broad ovate, long-stalked, fleshy. Annual. The Perfoliate Claytonia is not indigenous; it is a plant of North-west America, which has been introduced to our gardens as a pot-herb, whence it has escaped and successfully established itself in the wild condition outside. It sends up an unbranched flower stem in May, and this bears, below the cyme of small white flowers, a basin formed by the junction of two stalkless leaves. It is to the fact that the stem passes through this basin that the specific name *perfoliata* refers. The plant is from six inches to a foot in height.

2. **Sandwort Spring Beauty** (*C. alsinoides*).—This species has more slender oval radical leaves, and those on the stem are round and stalkless, but not united by the bases as in *C. perfoliata.* The flowers are larger and more numerous. Annual. This species has no more claim than the previous one to be regarded as British, but it has firmly established itself in places.

Order XXXIV. ILLECEBRACEÆ—KNOT-GRASS TRIBE.

Sepals usually 5; petals 5, minute, inserted between the lobes of the calyx, sometimes wanting; stamens varying in number, opposite the petals if equalling them in number; ovary not combined with the calyx; pistils 2—5; fruit 1-celled; opening with 3 valves, or not opening. The Knot-grass Tribe is composed of small shrubby or herbaceous plants, with minute



1 CHICKWEED
Montia fontana

2 SAND STRAPWORT
Corrigiola littoralis

3 GLABROUS RUPTURE WORT
Herniaria glabra

4 HAIRY R W
Herniaria hirsuta

5 WHORLED KNOT-GRASS
Illecebrum verticillatum

6 FOUR-LEAVED ALL SEED
Polycarpon tetraphyllum

flowers and undivided leaves. The few British genera are mostly found in the southern counties of the kingdom; and the plants of this order occur chiefly in Southern Europe or Northern Africa.

1. STRAPWORT (*Corrigíola*).—Sepals 5; petals 5, as long as the calyx; stamens 5; stigmas 3, sessile; fruit 1-seeded, inclosed in the calyx. Name signifying a little strap, from the form of the leaves.

2. RUPTURE-WORT (*Herniária*).—Sepals 5; petals 5, resembling barren filaments; stamens 5, inserted on a fleshy ring; stigmas 2, nearly sessile; fruit 1-seeded, inclosed in the calyx. Name from the ailment which it was supposed to cure.

3. KNOT-GRASS (*Illécebrum*).—Sepals 5, coloured, thickened, and terminating in an awl-shaped point; petals 0, or 5; stigmas 2; fruit 1-seeded, inclosed in the calyx. Name from the Latin *illécebra*, an attraction.

4. ALL-SEED (*Polycárpon*).—Sepals 5; petals 5, notched; stamens 3—5; stigmas 3, nearly sessile; fruit 1-celled, 3-valved, many-seeded. Name from the word *polys*, many, and *karpos*, fruit.

1. STRAPWORT (*Corrigíola*).

Sand Strap-wort (*C. littorális*).—Stem spreading, leafy; flowers stalked in small clusters; stem-leaves oblong, narrow below. Plant annual. This rare and pretty little Strapwort spreads itself over the ground, bearing, from August to December, tufts of little white flowers. It grows on Slapton Sands, and near the Start Point, in Devonshire; and is found in great abundance on the banks of the Looe Pool, near Helston, in Cornwall. It is the *Corrigiole* of the French, the *Lingenkraut* of the Germans, the *Riempjis* of the Dutch, and the *Corrigiola* of the Italians.

2. RUPTURE-WORT (*Herniária*).

Smooth Rupture-wort (*H. glábra*). — Stem prostrate, clothed with minute curved hairs; leaves oval, narrowing towards the base, more or less hairy, in some cases fringed with delicate hairs; flowers sessile, axillary. Plant perennial. This varies very much in some of its characters. In one variety the leaves are quite smooth, and in the other the leaves have sometimes hairs on the surface, with a delicate fringe around the edges, like an eyelash. Some botanists think the latter, which grows at the Lizard, a permanent distinction, and describe the plant in this condition as a different species, under the name of *H. ciliata*. The plant is sometimes said to resemble wild thyme in its habit, but the flowers are green. They appear from July to September, either in tufts from the axils of the leaves, or the clusters form a crowded spike interspersed with leaves. The plant is not common, occurring chiefly in Cambridge, Lincoln, Norfolk and Suffolk; and in the western parts of Kerry, in Ireland, though nowhere in any abundance. A variety of a more hairy nature is by some botanists termed *H. hirsuta*. Its hairs are spreading, but in other respects it resembles the ordinary form. Its only British locality is near Christchurch, in Hampshire.

3. KNOT-GRASS (*Illécebrum*).

Whorled Knot-grass (*I. verticillátum*).—Leaves broadly egg-shaped, smooth; stipules white, chaffy and jagged at the margin; stems slender.

Plant perennial. This little Knot-grass, doubtless, received its English name from its entangling stems. These have a reddish hue, and the small white flowers which grow around them in axillary whorls, are remarkable for their thick calyxes. The plant is found on boggy lands and in standing pools in Cornwall and Devonshire. In the former county it is not uncommon. It flowers from July to September. One of its old names was Whitlow-grass, from a fancied efficacy in its cure of whitlows. The Germans call it *Nagelkraut*, and the Spaniards *Nevadilla*. It is the *Paronique* of the French.

4. ALL-SEED (*Polycárpon*).

Four-leaved All-seed (*P. tetraphýllum*). — Stems prostrate and branched; leaves oval, tapering at the base, upper leaves in pairs, lower in fours; flowers with 3 stamens. Plant annual. This plant is neither conspicuous nor frequent in this kingdom, occurring chiefly on the southern coast of England. It has also been found in Glamorganshire, and is a common weed in the Isle of Jersey, growing all about St. Aubyns, on sunny banks, on hedges, and in gardens. It produces, from May to August, numerous little greenish-white flowers. It has plenty of tiny seeds in its small two-valved capsules; but the name which it now bears was originally applied to the common Knot-grass (*Polygonum aviculare*), which it somewhat resembles. One of its old English names was Linum.

Order XXXV. CRASSULACEÆ—STONECROP TRIBE.

Sepals 3—20, more or less united at the base; petals equal to the sepals in number, inserted in the bottom of the calyx; stamens as many, or twice as many—in the latter case, the stamens opposite the petals are shorter than the others; ovaries as many as the petals, 1-celled, tapering into stigmas, often with a gland at the base of each; fruit consisting of several erect seed-vessels, which open lengthwise; seeds in a double row. This order is composed of herbs and shrubs, which have thick succulent leaves and stems, and star-shaped blossoms. They are remarkable for growing on the most arid soils, ornamenting the sandy deserts of Southern Africa with beautiful blossoms, and inhabiting, in greater or lesser number, all parts of the world. Many grow on rocks; some on walls or roofs of houses, or dry, hot, sunny slopes; living on the nutriment derived from the atmosphere, rather than on that absorbed through the roots. Many of the plants are used medicinally, being often pungent or acrid, in several cases refrigerant, and in some astringent, or containing malic acid.

1. TILLÆA.—Sepals, petals, stamens, and carpels 3—5, one or more seeded. Name from an Italian botanist, Michael Angelo Tilli.

2. PENNYWORT (*Cotylédon*).—Sepals 5; corolla tubular, 5-cleft; stamens 10; carpels 5, with a scale at the base of each. Name from the Greek *kótyle*, a cup, from the form of the leaves.

3. HOUSE-LEEK (*Sempervívum*). — Sepals, petals, and carpels 6 — 10; stamens, twice as many. Name from the Latin *semper*, always, and *vivo*, to live.

4. STONECROP (*Sédum*). — Sepals and petals 4—5; stamens 8—10, spreading; carpels 4—5. Name from the Latin *sedeo*, to sit, from the lowly growth of the plants.

1. TILLÆA.

Mossy Tillæa (*T. muscósa*).—Stems branched, and bending down at the base; leaves opposite, oblong, concave; flowers generally 3-cleft. Plant annual. This little Tillæa, though quite distinct from the pearlworts, is much like them. The small greenish-white flowers expand in May and June, and have a reddish tinge at the tips of the petals; the calyx leaves are sharply pointed. It is a plant of sandy heaths, but of rare occurrence, its range in this country extending only from Norfolk to Devon.

2. PENNYWORT (*Cotylédon*).

Wall Pennywort (*C. umbilícus*).—Leaves circular, on central stalks, and with rounded notches on their margins, generally more or less concave above; upper bracts very small and entire. Plant perennial. This singular-looking plant has spikes of long drooping bell-shaped flowers, with the corolla cleft nearly to the middle. They are of greenish-white colour, appearing from June to July. The plant owes its name of Pennywort to the round leaves; it is also in some country places called Penny-pies, or Kidney-wort. It is *Le Cotylei*, or *Cotylier*, of the French. The glossy root-leaves are pellate—that is, the leaf-stalk is in the centre of the underside. On the upper surface they are somewhat sunk in the centre, and in some of the species cultivated in our gardens they are much more so, forming little cups or vases. The stem-leaves are spoon-shaped. The plant is very succulent, and the flowering stem is from half a foot to a foot and a half high.

This Pennywort is very common in some parts of the kingdom, especially in the western counties, but there are many districts where it is scarcely ever seen. The Rev. W. T. Bree remarks, that he scarcely remembers ever finding it in Warwickshire, except on the ruins of Maxstoke Priory, and there but sparingly; while in Cornwall, some parts of Somersetshire, and in the county of Wicklow, as well as in North Wales, it is abundant on rocks, walls, and banks. It is rare in Kent, but the author once received a specimen of the plant from the wall of Maidstone Church. Its ordinary place of growth is the old wall, roof, or stone dyke, and it is very luxuriant on moist rocks in mountainous countries. When its flower-spikes cover the face of a stone-built hedge, as may commonly be seen in Cornwall, its appearance is very striking. There the root-leaves often attain a diameter of four inches.

A species called *Cotyledon lutea* is sometimes enumerated among our native flowers, but it is not a British plant.

3. HOUSE-LEEK (*Sempervívum*).

Common House-leek (*S. tectórum*). — Leaves thick, fleshy, fringed with delicate hairs; flowers containing 12 perfect, and 12 imperfect stamens. Plant perennial. Tufts of juicy leaves of the House-leek, forming large verdant patches on the cottage-roof or wall-top, though not so frequent as

they once were, are yet common. In many a spot such scenes may be seen as one which Leyden so long remembered, and so deeply deplored:—

> "The cottage roof fern-thatch'd, and gray,
> Invites the weary traveller from the way,
> To rest and taste the peasant's simple cheer,
> Repaid by news and tales he loves to hear;
> The clay-built wall with woodbine twisted o'er,
> The House-leek clustering green above the door;
> While through the sheltering elms that round them grew,
> The winding smoke arose in columns blue."

The old Dutch names of this flower, *Donderbaard*, and *Donderbloem*, remind us of the notions which in former days induced the planting of the House-leek on the roof of the dwelling. It was in our own, as in other lands, deemed a preservative against thunder. This superstition seems banished from our country; but a friend of the writer's, when residing in Holland, seeing a roof almost covered with the plant, inquired of the owner of the house why it was cultivated there, and was told that it was a certain protection from the danger of the storm. One of our old herbalists says, "It is reported by Mizaldus to preserve what it grows upon from fire and lightning." Another old writer, speaking of the bay-leaf as "privileged from the prejudice of thunder," adds:—"An ancient author recited among divers experiments of Nature which he had found out, that if the herb House-leek, or Sengreen, do grow on the housetop, the same house is never stricken with thunder and lightning. Even the philosophical Sir Thomas Browne, whose work on Vulgar Errors must have done some service in the cause of truth, yet never doubted that the House-leek was, as he expresses himself, 'a defensative' from lightning."

The House-leek may easily be made to cover the whole roof of a building, whether of tiles or thatch, by setting the offsets with a little earth. It will also grow freely on the tops of walls. Linnæus remarked that House-leek was a preservative to the coverings of houses in Smoland; and it seems a frequent custom in the north of Europe to give to the houses a plot of some verdant plant, many roofs in Sweden being covered with green turf, which in summer is fit for mowing, presenting the singular appearance in the streets of numerous little sloping meadows. Nowhere does the House-leek, however, grow to such luxuriance as at Teneriffe, where plants of this genus are often shrubs, and flourish on the steep cliffs and rocks in the neighbourhood of the sea so as almost to cover them. Some of the old Gothic mansions in the interior of the island have their walls and roofs quite overspread with ferns and House-leek. In the flowering season they produce a most brilliant effect, for their flowers are large, and instead of the purple blossoms which deck the European species, those of Teneriffe are of a bright golden-yellow.

The House-leek is often boiled with milk, and given to quench thirst in fevers. Mixed with honey it is a good application for inflammation of the throat. Old writers describe its uses, when bound about the forehead, "to ease the headache, and distempered heat of the brain in frenzies, or through want of sleep." The juice mixed with cream is still a popular village remedy for erysipelas; and we can ourselves testify to its uses in allaying the irritation caused by the sting either of the bee or nettle. One of the species

1. MOSSY TILLÆA
Tillæa muscosa.

2. WALL PENNYWORT
Cotyledon umbilicus.

2 a.
C. lutea.

3. COMMON HOUSE LEEK.
Sempervivum tectorum.

4. ROSE-ROOT STONECROP.
Sedum rhodiola.

5. ORPINE
S. telephium.

common in Madeira, the *Sempervivum glutinosum*, is of much service to fishermen. They rub their nets with the fresh leaves of this plant, and if they are subsequently dipped in any alkaline liquor they are rendered as durable as if they were tanned. Several species cultivated in our gardens and greenhouses are very pretty. The Cobweb House-leek has long white hairs at the tips of its leaves, which cross, and present the appearance of a plant over which the spider has trailed its net.

Our common House-leek has, in July, handsome succulent flowers of a reddish-purple colour. The plant had in earlier times the names of Sengreen, Jupiter's beard, Jupiter's eye, and Bullock's eye. It is called in France, *Joubarbe*, and in Germany, *Hauswurz;* the Italians term it *Sempervivo.*

The House-leek must be regarded rather as a naturalized than a native plant. It is rarely, if ever, found in our country even apparently wild, being usually on walls and house-tops. Schouw, in considering plants in their relation to soils, enumerates some which grow on living or dead animals or plants, and those which grow on artificial substances. These last he divides into wall, ruin, plank, and rubbish plants. Meyen, referring to this, says: "Wall plants are those which appear on the walls of buildings, and certainly are very seldom wanting on them when old; but as they appear chiefly on very old decayed buildings, ruin plants are not properly distinct from them. As belonging to this class, I may name the lichen called wall lecanora (*Lecanora muralis*), the wall-moss (*Dicranum murale*), the fern called wall-rue (*Asplenium ruta-muraria*), the biting stonecrop, the livelong, and many others. But it is right to remark, that all these plants which we have considered as wall and ruin plants can grow quite as well in other situations, on the ground, or on the bark of trees, and on rocks; and a particular inclination to the artificial situation can only have been ascribed to them because in certain countries they are almost always to be found upon them. This is also the case with roof plants. Thus, the common or roof House-leek, which has a preference for such a habitat, occurs likewise in natural situations; and the numerous mosses, which in the North grow on roofs of houses, are found on the ground, on rocks, and on the bark of trees."

This German writer, following Schouw's division, enumerates as board or plank plants those which grow on wooden palings or similar places. Such are the lichens, the wall parmelia and wall lecanora; and these grow equally well on wood, or on stone walls, or rocks. On the garden-palings of other countries other plants prevail; and Meyen says that in East Prussia there is seldom wanting on barn-doors a great quantity of the lichen *Ramalina fraxinea*, often six inches in length. The rubbish plants are such as grow in the vicinity of dwellings, as the Good King Henry, the borage, and the henbane, which are often found on heaps about houses.

4. Orpine and Stonecrop (*Sédum*).

* *Leaves flat.*

1. **Orpine**, or **Livelong** (*S. telephium*).—Leaves oval, often wedge-shaped at the base, serrated; flowers in crowded corymbs, interspersed with leaves; stamens 10. Plant perennial. This is the largest of our British

species of this genus, and has a very succulent stem, terminating, in July and August, with clusters of handsome purple flowers. The stem is often two feet high, and spotted; and the thick leaves at the upper part are in one variety rounded at the base, but in another all the leaves become narrow towards the stem. The Orpine is a generally dispersed plant, but not very abundant, occurring in field-borders, hedges, and bushy places. Its properties are slightly astringent, and the plant is boiled with milk and used medicinally. It is also sometimes pickled like samphire, but is very inferior to that vegetable.

The name of Livelong well denotes a peculiarity of this plant, which Spenser describes as—

"Cool Orpine growing still,"

for it not only continues fresh long after it is gathered, but if hung up in a room will continue to grow for some weeks as well as when in the earth. It seems to have been a very favourite flower of our ancestors, and we find it in the list of almost all accounts of such processions and floral ceremonies as occurred when it was in season. It was one which was named in all the accounts given of the practices of Midsummer Eve, and it has the old name of Midsummer-men. Lyte, in his translation of Dodoens' "Herbal," says of the "Orpyne": "The people of the countrey delight much to set it in pots and shelles on Midsummer-even, or upon timber, slattes, or trenchers, daubed with clay, and so to set or hang it up in their houses, where as it remaineth greene a long season, and groweth if it be sometimes oversprinkled with water. It floureth most times in August." Many foolish and superstitious practices were connected with it, for it was a kind of love-charm; and they appear to have been sometimes used even in later days, for Hannah More relates of a young country girl, that she would never go to bed on Midsummer Eve without putting up in her room a piece of the plant called Midsummer-men, as the bending the leaves to the right or to the left would indicate the constancy or faithlessness of the object of her thoughts.

Sir Henry Ellis mentions that "A small gold ring was some years since found by the Rev. Dr. Bacon, of Wakefield, in a ploughed field near Cawood, in Yorkshire, which had for its device two Orpine plants joined in a true-love-knot, with this motto above, '*Ma fiance velt*'—that is, 'My betrothed wills, or is desirous.' The stalks of the plant inclined towards each other, intimating that those to whom it belonged expected to be united in marriage. The motto under the ring was, '*Joye l'amour feu.*'" The Society of Antiquaries, to whom it was exhibited, judged from the form of the letters that it was a ring of the fifteenth century.

2. **Rose-root Stonecrop** (*S. rhodiola*).—Leaves oblong, flat, smooth and toothed; flowers having stamens and pistils on different plants. Plant perennial. This Rose-root Stonecrop, which much resembles the Orpine, formerly constituted the genus called *Rhodiola*. It is a succulent broad-leaved plant, stouter than the Orpine, but with its stem shorter, and rarely more than a foot in height. Its flowers expand in June, and are of yellow or purplish colour. The root-stock is long, thick and knotted, and has, when dried, a sweet odour, resembling that of the rose. The plant is abundant

on mountains and cliffs in Scotland, Ireland, Wales, and also at the north of England. The root is used by the Greenlanders as an esculent vegetable.

* * *Leaves scarcely if at all flattened. Flowers white or reddish.*

3. **English Stonecrop** (*S. anglicum*).—Leaves egg-shaped, fleshy, spurred at the base beneath, sessile; cymes few-flowered; petals very sharply pointed. Plant perennial. This species, though small, is one of the prettiest of the genus, when, in May or June, its white star-like flowers, with reddish-purple anthers, are expanded on the rocky sandy soils. The leaves, which are chiefly placed alternately, are small and thick, of a sea-green hue, often tinged with red; and the stems, which are at first prostrate, afterwards become about three or four inches high. On the western shores of England and Scotland this Stonecrop often enlivens by its green masses and flowers the rocky banks; and in North Wales every rock and mountain seems to be adorned by it. It has much of the general appearance of the Common Biting Stonecrop, only that its flowers are not yellow, and it often grows with it, as Bishop Mant has said:—

"See on the inland garden's bound
Or antique battlemented mound,
Which girds some castle's steep aloof,
Or lowly peasant's peaceful roof,
The Stonecrop spreads a mantle bright,
Like cloth of gold, or silver white,
Powder'd with spots of garnet red."

4. **White Stonecrop** (*S. álbum*).—Leaves oblong, cylindrical, blunt, scattered; cymes much branched, and drooping when in bud. Plant perennial. This species, which is not common, does not appear to be truly wild, except perhaps on the Malvern Hills and in Somerset. It is a somewhat taller and less thick plant than the last, and its white flowers, which are produced in July and August, are destitute of the bright purple colour which tinges the anthers of the English Stonecrop. The foliage has, however, the same glaucous hue, often stained with red. It grows on rocks and walls in various counties of England, and is more general on garden walls and on outhouses, where it was probably cultivated, than on any other spots.

5. **Thick-leaved Stonecrop** (*S. dasyphýllum*).—Leaves fleshy, almost globular, and opposite, except on the flowering stems; flowers in panicles; petals egg-shaped and blunt. Plant perennial. This is a doubtful native, found occasionally on walls and rocks in various parts of England, and in one or two places in Scotland and Ireland. It is a small plant, having leaves of pale green tinged with red, and its pink-streaked white flowers blooming in June and July.

6. **Hairy Stonecrop** (*S. villósum*).—Leaves scattered, oblong, flattened above, and, as well as the stems and flower-stalks, hairy. This is a small biennial species of Stonecrop, not common in all parts of the kingdom, though frequent in Scotland and the north of England. It would easily be distinguished in a family of plants remarkable for their smooth foliage, by its hairy stems and leaves, which are also clammy to the touch. Its stems are about two or three inches high, and of purplish colour; and the flowers, which appear in June and July, are white or of a pale pink hue.

** * * Leaves scarcely or not at all flattened; flowers yellow*

7. **Biting Stonecrop** (*S. ácre*).—Leaves egg-shaped, fleshy, spurred at the base, sessile; cymes 3-cleft, leafy; petals pointed; sepals blunt, swollen at the base. Plant perennial. This is a very common wild flower, growing on walls and tiles of houses, as well as on dry sandy slopes and heaths. From its frequency on the cottage-roof it sometimes shares with the *Sempervivum* the name of house-leek, and is apparently the plant alluded to in Clare's lines:—

"O Home, however homely, thoughts of thee
Can never fail to cheer the absent breast:
How oft wild raptures have been felt by me
When back returning weary and distrest;
How oft I've stood to see the chimney pour
Thick clouds of smoke in columns lightly blue,
And close beneath the house-leek's yellow flower,
While fast approaching to a nearer view."

The Dutch call this Stonecrop *Huislook*, and the Spaniards term it *Uvas de gato*. It well deserves, in common with most of the species, its name of Stonecrop, for it is often abundant on stony barren places, being well fitted for such soils by its succulent nature. Plants of this kind, like the aloe and the cactus, are designed to inhabit exposed and dry places, and sometimes to experience not only the heat of a scorching sun, but also a long season of drought. They are, therefore, provided by the Creator of the Universe not only with a large mass of juicy material, but the thin skin, or cuticle, which covers every part of them, is adapted to admit of ready absorption and tardy perspiration. It is this which enables the Livelong and several others of the species to live and grow when separated from the root. One of these succulent leaves, as that of an aloe, will, when partly dry, again become plump in a few hours if plunged into water.

The Biting Stonecrop is very similar to some others of the yellow flowering species; but, even when not in bloom, it may be known from all others by the mode in which its short thick leaves are arranged on its barren stems, where they crowd so closely as to overlap each other. Country people call it Small Houseleek, Prick Madam, Gold Chain, and Wall Pepper; the last name being merited by its pungent flavour—indeed, it should be tasted with caution, as its juice is acrid enough to blister the tongue. It was a plant much in use among the old herbalists, both as an outward application, and also, when boiled in beer, as a remedy in pestilential fevers. They deemed it an "expeller of poisons," and it stood pre-eminent among simples as a cure for ague. This species is the *Trique Madame* of the French.

8. **Tasteless Yellow Stonecrop** (*S. sexangulâre*).—Leaves linear, blunt, rounded, and spurred at the base; cymes 3-cleft, and smooth; sepals acute, not swollen, at the base. Plant perennial. This species is not a native, though it is found rarely on old walls in Eastern England. The leaves are much longer than in the last species, and arranged in six rows on the barren shoots. The yellow flowers appear in July.

9. **Crooked Yellow Stonecrop** (*S. reflexum*).—Leaves awl-shaped, scattered, spurred at the base, convex on both sides; flowers in cymes; sepals egg-shaped, rather acute. Plant perennial. A variety of this kind, which

1. THICK-LEAVED STONECROP.
   Sedum dasyphyllum.
2. ENGLISH S.
   S. anglicum.
3. WHITE S.
   S. album.
4. HAIRY S.
   S. villosum.
5. BITING STONECROP.
   S. acre.
6. TASTELESS YELLOW S.
   S. sexangulare.
7. CROOKED Y. S.
   S. reflexum.
8. ST. VINCENT'S ROCK S.
   S. rupestre.
9. WELSH ROCK S.
   S. fosterianum.

has more slender leaves, paler flowers, and is of glaucous hue, is termed by some botanists *S. glaucum* or *S. albescens*. It is described as growing on some dry hills near Mildenhall, Suffolk, and at Babbicombe in Devon; and this is considered to be the indigenous form, that most commonly seen with brighter flowers being a garden escape. The leaves of the former are described as not spreading, whereas in the general state of the Crooked Stonecrop they spread, and turn backwards. The flowering stems of this species are more slender and tough than those of any of the preceding kinds; they are from six to ten inches long. In July and August, thick clusters of its bright yellow flowers are to be seen clothing many an old wall and sunny bank with golden beauty. Dr. George Johnston, remarking on its tenacity of life, says of this plant: "I pressed strongly, between dry papers, a specimen without radicles, and the flowers of which were not in the least expanded. The papers were changed every three or four days; but at the end of as many weeks, so far was life from being extinct, that it had protruded many white root-fibres from one to two inches long, and the flowers had fully expanded themselves."

10. **St. Vincent's Rock Stonecrop** (*S. rupéstre*).—Leaves slightly flattened, spurred at the base, and 5 in a whorl, those of the barren branches overlapping each other; flowers in corymbs. Plant perennial. This species opens its flowers during June and July; not only on the St. Vincent's and Cheddar rocks, but also on walls about Darlington, and in some places in Wales and Ireland. It is very nearly allied to the last, differing chiefly in its more flattened leaves, and smaller size.

11. **Welsh Rock Stonecrop** (*S. forsteriánum*). — Leaves flattened, spurred at the base, those of the barren branches spreading in many rows. Plant perennial. This species flowers in June and July, on wet rocks in Wales and the adjoining English counties. The short, erect, densely leafy, barren stems, forming little rose-like tufts, are its chief characteristics; but some botanists doubt if it is essentially distinct from the preceding, of which they regard it as a sub-species.

Order XXXVI. GROSSULARIEÆ—GOOSEBERRY AND CURRANT TRIBE.

Calyx growing from the summit of the ovary, 4 or 5 cleft; petals 4—5, small, inserted at the mouth of the calyx-tube, and alternating with the stamens; ovary 1-celled, with the young seeds arranged in two opposite rows; styles 2; berry crowned with the withered calyx, pulpy, containing stalked seeds among the pulp. This order consists of shrubs with or without thorns, and with simple lobed alternate leaves plaited while in bud. The woody stems and branches are round, or irregularly angled. The species grow only in the temperate parts of the world.

CURRANT AND GOOSEBERRY (*Ribes*).—Calyx 5-cleft; petals 5, inserted at the mouth of the calyx-tube; stamens 5; berry many-seeded, crowned by the withered calyx. Names given in ancient times by the Arabians to a species of rhubarb.

CURRANT AND GOOSEBERRY (*Ribes*).

Flowers 1—3 *together; branches thorny.*

1. **Gooseberry** (*R. grossulária*).—Leaves rounded and lobed; flower-stalks short, hairy, 1—3 flowered, with a pair of small bracts; thorns either single, or two or three together. Among the many kinds of Gooseberry which are cultivated in our gardens, few are preferred for their fruits to the varieties of this common species. The plant grows in many woods and hedges, though it seems to be truly wild only in the north of England. Rough and smooth, green, red, and yellow Gooseberries may, many of them, claim this common species as their parent. From very early times the Gooseberry has been much cultivated in this country, and it was by our forefathers called Feaberry. Mr. T. Hudson Turner says: "The earliest notice of the Gooseberry which I have found is in the fourth year of Edward I., 1276, when plants of this genus were purchased for the king's garden at Westminster; but, as it is an indigenous fruit, we may infer that it was known at a remote time, though probably only in a wild state." Tusser, who wrote his work on Husbandry in the time of Henry VIII., says:—

> "The barbery, respis, and gooseberry too,
> Look now to be planted as other things doe;'

and Lord Bacon, writing about fifty years after Tusser, says: "The earliest fruits are strawberries, cherries, gooseberries, and corrans; and after them, early apples, early pears, apricots, and rasps; and after them, damisons, and most kind of plums, peaches, etc.; and the latest are apples, wardens, grapes, nuts, quinces, sloes, brierberries, medlers, services, cornelians, etc." The partiality of the English for Gooseberries is commented on in the French "Encyclopédie des Sciences." One of the writers of the work says: "A great number of gooseberries are consumed in Holland and in England; and one sees in London, during the season of these fruits, nothing but gooseberry pies. One must admit, however, that this fruit is well adapted to ameliorate the muriatic and alkaline acrimony of the English diet. In France it is only women and children, or country people, who eat gooseberries." One reason, however, for their being less eaten may be found in the inferiority of the fruits when cultivated in France, or, indeed, in any warm climate. Even the English Gooseberry is inferior to the fruit of Scotland; and, provided there is warmth enough for ripening, the flavour seems to increase with the coldness of the climate where it is grown. In the south of Europe the fruit is so small and tasteless that it is quite neglected.

In England every cottage-garden can boast its Gooseberry-bush, and, as Bishop Mant has said:—

> "'Tis pleasant on each hardy tree,
> Currant or prickly Gooseberry,
> Along the hawthorn's level line,
> Or bush of fragrant eglantine,
> Bramble or pithy elder pale,
> Or larch or woodbine's twisted trail,
> Or willow lithe, a flush of green
> To note, with light transparent screen
> At intervals the branches hide,
> Of vegetable gauze, till wide
> It spreads, and thickens to the eye,
> A close-wove veil of deeper dye."

1. COMMON OR RED CURRANT
   Ribes rubrum
2. TASTELESS MOUNTAIN CURRANT
   R alpinum
3. BLACK CURRANT
   R nigrum
4. COMMON GOOSEBERRY
   R grossularia

The Gooseberry-leaf is, indeed, among the earliest of spring verdure. In France it is much more common in the hedges than with us; and from the beginning of March the plant may be seen winding its branches among the bushes, and enlivening the dreary season. "In the month of April," says the French writer in "L'Encyclopédie des Sciences," "it attracts by its flowers crowds of bees; its foliage is very thick then, though other shrubs are just putting forth their leaves, so that it is an excellent plant for decking spring arbours. I have a hedge which borders one of the paths of my April bower, in front of which I have planted primroses, violets, and auriculas, which contrast agreeably with the green background, and form a most graceful *coup d'œil.*" The leaf-stalks of the Gooseberry are beautiful objects beneath the microscope, on account of the delicate border of half-transparent hair-like fringe, which, when magnified, looks like the most brilliant needle-shaped crystals.

The Lancashire Gooseberries are the best which are grown in our country, and the names of several well-known varieties indicate that they were cultivated by working-men. All true lovers of their country must rejoice to see the hard-toiling weaver or collier resorting at the close of the day to his little garden, training his plants with care and skill, and striving to gain the prize to be given at the Gooseberry Show for the heaviest gooseberry. The Jolly Miner, Jolly Painter, Lancashire Lad, and many another good fruit, have originated thus, and were the result of industry. These Gooseberries were reared by men who loved their homes and families, men of regular and orderly habits, mostly of lowly birth, but often of elevated feeling and Christian worth; for the lovers of plants and the skilful cultivators of cottage plots are not usually found among the idle and dissipated of mankind. Gooseberry-bushes often attain great age and considerable size. At Duffield, near Derby, there was, about twenty years since, a bush well known to be at least forty-six years old, the branches of which extended twelve yards in circumference; and in the garden of Sir Joseph Banks, at Overton Hall, near Chesterfield, there were two very large bushes, which had been trained against a wall, and which measured each upwards of fifty feet across. A writer in the *Gardener's Chronicle* remarks of a Gooseberry plant: "It is surprising what efforts some plants, or parts of plants, will make to save, as it were, their lives when diseases or serious accidents befall them. A branch of a Gooseberry, trained against a wall, became diseased near the ground, and began to die upwards gradually; but the top of the branch made a struggle for life, and threw out roots into the wall between the joints of the bricks, and in that dry situation found means to support itself; the dead wood was cut out, and the living part left near the top of the wall, and there it remains a living plant."

Gooseberries are of various colours—white, yellow, green, and red. Some of our richest flavoured fruits are of the yellow kind; the red gooseberries are usually more acid than the others, but there are many varieties in all the colours. We need not comment on their uses for tarts, puddings, and preserves. The fresh fruits are valuable additions to the dessert, and a sparkling wine of crystal clearness, known in country places as English champagne, is made of the gooseberry. The Pecten acid, the vegetable jelly of the older chemists, was also prepared from this fruit.

The *groseille* of the French, as well as our own word "gooseberry," has been variously accounted for by etymologists. Some think that the English name was derived from "gorse" and "berry," because of the prickly shrub on which the fruit grows. Professor Burnett thinks that both the French and English words are corruptions of "grois" or "gross" berry; and Skinner considers that the plant was called gooseberry, because the fruits were used as sauce for the goose. Gerarde calls them Feaberries, and in Norfolk the fruits were called feabes. This author remarks, "The fruit is used in divers sawces for meate; they are used in brothes instead of verjuyce, which maketh the broth not onely pleasant to the taste, but is greatly profitable to such as are troubled with a hot burning ague."

* * *Flowers in clusters; branches without thorns.*

2. **Red Currant** (*R. rúbrum*).—Clusters drooping; bracts very small; leaves with five blunt lobes. Plant perennial. Several varieties of this plant are found apparently wild, in one of which the flowering clusters are erect, but the fruit is pendulous; and in another both flowers and fruit are upright; but in the ordinary form of the plant both flowers and fruit hang drooping from the bough. The shrub, though found growing without culture in many parts of this kingdom, especially in hedges near houses, is hardly to be considered as truly wild, except in the north of England and the Highlands of Scotland. In Dodoens' "History of Plants," translated by Lyte in 1578, it is called the red beyond-sea gooseberry; and in France, one of the modern names for the currant is *Groseille d'outre mer*. The French also call currants *Groseilles en grappes*, and the plant is termed in Germany *Gemeine Johannisbeere*. The old writers classed it with the Gooseberry; for Gerarde says, "We have also in our London gardens another sort of Gooseberry altogether without prickes, whose fruit is verie small, lesser by much than the common kinde, but of a perfect red colour, wherein it differeth from the rest of his kinde." Our English name, doubtless, owes its origin to the dried seedless grape of the Levant, which was called currant from Corinth; for our plant was formerly thought to be the Corinthian grape degenerated. The white and flesh-coloured fruits, so common in gardens, are but varieties of the red species. Their pleasant acid flavour is the consequence of the malic acid found in their juice; and, mixed with sugar, the fruit is of much value for domestic uses. The berries are refrigerant, and form a wholesome refreshment at that season of the year when juicy fruits are needed to counteract the effects produced on the system by the heat of the atmosphere. Being a hardy shrub, the Currant is valuable to the cottager; and when trained against a wall, and bearing in profusion its ruby clusters, which sparkle among the green leaves, it is as ornamental as it is useful. The red currant, besides having many other uses, is of great value for jellies; and both white and red currants were formerly used in wine, when home-made wines were more general than they now are. The wine is, however, too acid to be very wholesome. This plant was some years since grown to a great extent in Kent, Essex, and Worcestershire, the best-flavoured fruits being produced by plants which were reared in an open situation. It is wild, in more or less abundance, in all the colder countries of Europe, and is

cultivated in gardens in the more southern countries. It flowers in April and May.

3. **Tasteless Mountain Currant** (*R. alpinum*).—Stamens and pistils on separate plants, branches angled, leaves shining beneath; clusters of flowers and fruit erect; bracts longer than the flowers. Plant perennial. This Currant grows in the woods and hedges of the north of England, but is scarcely wild in Scotland. Both leaves and flowers are very small. The currants are red. It is in flower in April and May.

4. **Black Currant** (*R. nigrum*).—Clusters loose, drooping, with a single-stalked flower at the base of each; calyx downy; leaves sharply 3—5-lobed, dotted with glands beneath. Plant perennial. This species is found in woods and by river-sides, in various places; and though probably not a native of Britain, the time of its introduction is unknown. Hooker says it is "apparently wild in the Lake district and Yorkshire." It is quite a distinct species, and has no tendency to produce varieties. In Kent, its fruit is commonly called gazel, and we find it so termed by writers of the sixteenth century; but Coles, writing in 1657, says the white currant was in Kent called gozill. It is a very common plant in the woods of Russia and Siberia, where wine is made of the berries only, or is fermented with honey, and sometimes with some spirituous liquor. In England, the flavour of the black currant is not liked so well as that of the red; but the jelly and lozenges made of the fruit are valuable medicines in affections of the throat. The leaves have a strong odour, unpleasant to most persons, yet well-liked by the natives of Siberia, who mingle them with a spirit, to which they are considered to impart a delicious flavour. They are often mixed with green tea in country places, and they are said to be one of the substances used by those who adulterate that article, and perhaps are among the most innocent ingredients employed for the purpose. The fruits are considered tonic and stimulating, and the wood and leaves partake of these properties. The berry is the largest of our currants, and is black and glossy. Some very pretty currant shrubs are cultivated in gardens. The common Red-flowered Currant (*R. sanguinea*), and the sweet-scented Yellow Currant (*R. aurea*), are among the gayest of our garden flowers in March and April.

Order XXXVII. SAXIFRAGEÆ—SAXIFRAGE TRIBE.

Calyx of 4—5 sepals united at the base; petals equalling the sepals in number, inserted between the sepals, rarely wanting; stamens 5—10; ovary of 2 united carpels; styles 2, usually spreading in opposite directions; capsule 2-celled, opening on the inner side; seeds numerous. This order consists chiefly of herbaceous plants, with alternate, rarely opposite, leaves. The species contain no very important properties, though some British plants are slightly astringent, and some foreign species are more so. The *Heucheria americana*, a plant of this order, is commonly called Alum-root, from its astringency; and several species of *Weinmannia* are employed in the manufacture of leather, as well as in the adulteration of Peruvian bark. The genus *Saxifraga* is a very extensive one. It yields some mucilage, but its

greatest worth is the beauty of its flowers, which often adorn lofty mountains, or in other cases deck the barren wall or rock. They are frequently the most lovely objects in Alpine wildernesses, flowering with the blue gentians in spots almost inaccessible to the traveller, and giving by their leaves an almost perpetual verdure to barren soils. Some species grow on marshes or by river-sides.

1. SAXIFRAGE (*Saxifraga*).—Calyx in 5 divisions; petals 5; stamens 10; styles 2; capsule 2-celled, 2-beaked, opening between the beaks; seeds numerous. Name from *saxum*, a stone, and *frango*, to break, probably from some species growing among the crevices of rocks.

2. GOLDEN SAXIFRAGE (*Chrysosplénium*).—Calyx with 4 or 5 lobes; petals none; stamens 8, rarely 10; styles 2; capsules 2, beaked. Name from the Greek, *chrysos*, gold, and *splen*, the spleen, from some imagined virtues of the plant.

1. SAXIFRAGE (*Saxifraga*).

Calyx reflexed, inferior; flowers whitish, panicled.

1. **Starry Saxifrage** (*S. stellaris*). — Leaves oblong, wedge-shaped, toothed, scarcely stalked; panicles of few flowers. Plant perennial. This plant grows on mountainous places by the side of rivulets, or on wet rocks, in Scotland, England, Wales, and the north of Ireland. It is from two to five inches high, its leaves having large roundish notches at their edges. The few flowers expand in June and July. They are white, with two yellow spots at the base of each petal.

2. **London Pride** (*S. umbrosa*).—Leaves roundish, oval, with white cartilaginous notches, tapering at the base into a flat foot-stalk. Plant perennial. This beautiful little flower is well known as one of the few which will bear unhurt the smoke of large cities. It grows well in London, flourishing not only in the squares and open parts of the great city, where many hardy flowers may be found, but cheering also some of the gloomy little spots at the backs of houses in densely populated neighbourhoods. One sighs at the sight of these small plots, though glad that when even the "mournful mint" seemed injured by the sooty mist gathered about it, yet the London Pride survived all the ills of its condition, and perchance soothed some careworn heart by its cheerful flower. Bishop Mant thus alludes to this and another plant:—

> "Its disk of white on upland wolds
> The pretty Saxifrage unfolds,
> With lucid spots of crimson pied,
> Hence brought, and hail'd the City's Pride;
> And yellow rose-root yields its smell
> From Cambrian crag or Cumbrian fell,
> Or Rachlin's lone basaltic isle."

This Saxifrage is found on the mountains of Ireland so plentifully, that it has the common name of St. Patrick's Cabbage. It is also called None-so-pretty; and the old name of Queen Anne's Needlework was doubtless given from the delicate red spots traced on its white petals, and which to some of the embroiderers, who in those days practised the mysteries of "tent work, raised work, laid work, frost work, Irish stitch, fern stitch, Spanish stitch,

rosemary stitch," and many another stitch, suggested the remembrance of some one of their manifold traceries and devices. Parkinson, writing of it in 1629, terms it Sedum, and says, "Some of our English gentlewomen have called it Prince's Feather, which, although it be but a by-name, may well serve for this plant to distinguish it."

The London Pride as a wild plant is rare in England, though naturalized in woods at Wetherby and at Craven, in Yorkshire. The Rev. W. T. Bree, commenting on this plant, says, "Mr. Lees informs us that *Saxifraga umbrosa* may now be found on some of the rocks at Malvern; but he very properly assigns to it a garden origin. Some years since, while touring in Yorkshire, I was at no small pains in endeavouring to meet with this plant in a truly wild state, and with this view visited the spot (Hestleton Gill) so minutely pointed out as its habitat in 'English Botany.' The result, however, of my examination was only an increased doubt as to the species being even in this sequestered spot really of spontaneous growth. It has been confidently asserted that the plant occurs wild in Ireland; but erroneously, I believe, unless indeed the discovery has been made of late years. The London Prides which grow unquestionably wild, and so profusely adorn the rocks and mountains of Kerry, that is, the Gap of Dunloe, and the rocks near Killarney, are not *Saxifraga umbrosa*, but some allied species, be they two (*S. geum* and *hirsuta*) or more, with their perplexing host of endless varieties; and I very much doubt whether any truly wild habitat for *Saxifraga umbrosa* be yet known, either in Ireland, England, or even Scotland; or, indeed, whether the plant be in fact originally indigenous. Ireland is the proper country of the London Pride family of the Saxifrage genus. In some parts of that country they grow in astonishing profusion; but among all the countless varieties which are to be met with, I never could see in a wild state any one that could be mistaken by a botanist for the true *S. umbrosa*." Our best writers on British plants, as Sir William Hooker, Dr. Arnott, and Mr. Babington, all agree with the opinion that the plant is not indigenous in Britain, though it is regarded as a native of West and South-west Ireland. Besides the places named, it grows about Edinburgh and Glasgow. Several varieties occur of this species, many of which are regarded by some botanists as distinct species. Such a one is the plant called *S. elegans*, which grows on the Turk mountain, and is probably a hybrid between *S. umbrosa* and *S. geum*. It has round, smooth, shining serrated leaves, with foot-stalks which are broad, flat, and serrated beneath. The type of the species has smooth leaves, longer than they are broad, with the teeth either blunt or short, and pointed; and it flowers in June and July. The varieties differ much in the toothing, as well as in the form of the leaves.

3. **Kidney-shaped Saxifrage** (*S. géum*).—Leaves roundish or kidney-shaped, sharply toothed, or having rounded notches; foot-stalks hairy, linear, and channelled above; leaves in one form hairy on both sides, in a second variety smooth on both sides. Plant perennial. This species is very nearly allied to *S. umbrosa*, of which it is probably a sub-species, but it may be distinguished by its kidney-shaped leaves. It flowers in June, and is common on the mountains of Cork and Kerry. Its ordinary form has the leaves sharply toothed, but there are several varieties and hybrids found in its

neighbourhood, which have by botanists been described as distinct species. The chief of these is a plant formerly called Hairy Saxifrage (*S. hirsuta*), which has slightly hairy, oval, dark green leaves, scarcely cordate at the base, and which appears to be intermediate between this and *S. umbrosa*. It is common on the Gap of Dunloe, in Kerry. The Kidney-shaped Saxifrage varies not only in the amount of its hairiness, but also in respect of size, and in the degree in which the margin of the leaf is toothed.

* * *Calyx spreading; leaves not divided.*

4. **Clustered Alpine Saxifrage** (*S. nivális*).—Leaves all from the root, somewhat leathery, inversely egg-shaped, sharply crenate; calyx half inferior; flowers in a crowded head. Plant perennial. This alpine species is from three to six inches high, and has large white flowers growing in a compact cluster, and appearing in July and August. It is frequent among the clefts of the high mountains of Wales, Scotland, and the Lake district. Linnæus stated that the Alpine Saxifrage flowered in the regions of eternal snow; and later botanists have occasionally detected a prolific vegetation existing even under the snow of Arctic regions. Dr. Hooker mentions that whilst at Tierra del Fuego he had observed a *Pernettya mucronata* in full bloom in a spot from which the snow had been accidentally removed.

5. **Yellow Mountain Saxifrage** (*S. aizoídes*).—Leaves very narrow, fleshy, fringed, the lower ones crowded on the stem, the upper scattered; stem branched, prostrate below; capsule half superior. Plant perennial. This beautiful Saxifrage, though absent from our lowland meadows, is very abundant on mountains, especially near streams and rills. It is found in the north of England, Wales, and Scotland, having in June and July bright yellow flowers, spotted with reddish orange. The plant is sometimes called Aizoon-like Saxifrage, or Sengreen Saxifrage.

6. **Yellow Marsh Saxifrage** (*S. hírculus*).—Stem erect; leaves lanceolate, those from the root tapering into a leaf-stalk; calyx inferior, fringed at the margin; petals obtuse, with two callous points near the base. Plant perennial. It differs from the last species in having its flowers solitary, or nearly so. These are large and handsome, of bright yellow, spotted with scarlet at the base of the petals, and are produced from August to September. The stem is from four to eight inches in height, and the upper part is downy. The species, which is very rare, is found on wet moors in Scotland, Ireland, and the north of England.

7. **Purple Mountain Saxifrage** (*S. oppositifólia*).—Leaves egg-shaped, fringed, opposite, and closely crowded, so as to overlap each other; flowers solitary, terminal. Plant perennial. A lovely mountain-flower is this Saxifrage, occurring in alpine situations, fearless of snow or frost, and opening its rich purple blossoms in May and June. Its habit is unlike that of our other Saxifrages, as it forms straggling tufts on the moist alpine rocks in the north of England, and on Snowdon and other Welsh mountains, though its most frequent place of growth in this kingdom is in the Highlands of Scotland. Like several other of our native Saxifrages, the northern range of *S. oppositifolia* extends into the Arctic circle. Accustomed, as most persons have long been, to consider the regions of the Polar Seas as drear and almost

1. KIDNEY SHAPED SAXIFRAGE.
Saxifraga geum

2. LONDON PRIDE.
S. umbrosa.

3. STARRY S.
S. stellaris.

4. ALPINE CLUSTERED S.
S. nivalis.

5. PURPLE MOUNTAIN S.
S. oppositifolia.

6. YELLOW MARSH S.
S. hirculus.

7. Y. MOUNTAIN S.
S. aizoides.

8. WHITE-MEADOW S.
S. granulata.

9. DROOPING BULBOUS S.
S. cernua.

10. ALPINE BROOK S.
S. rivularis.

11. RUE-LEAVED S.
S. tridactylites.

flowerless, one is surprised to see such a plate as that prefixed to Dr. Sutherland's work on these lands, where large and gorgeous flowers are grouped together. True it is that there are vast dreary barren tracts, covered only with incredible quantities of lichens, making a walk over the dried and crusty surface during summer a weary labour, while the eye is rarely gladdened by seeing here and there some dark fir or dwarfed birch-tree. Yet there are seasons and spots in which wild flowers vary the scene; nor is the green turf altogether wanting, where, as Dr. Sutherland tells us, the chubby Esquimaux takes his childish pastime, rolling on the green spots which Nature has provided for him, watching with his bow and arrows, and the cunning eye of a sportsman, the ill-fated mouse or lemming that may have lost its hole in the grassy banks, or gathering the chickweed (*Cerastium alpinum*) which grows among the foxtail grass. In such regions the flowers of the Purple Saxifrage must afford delight to the traveller. "The most beautiful plant that one could see in a whole day's walking around Assistance Bay," says Dr. Sutherland, "was the Spider plant (*Saxifraga flagellaris*), so called from its striking resemblance to a large spider when it first appears above the surface, before the stem begins to rise from the spherical arrangement of the leaves, or the flagellæ begin to creep to any distance from among them to the soil around. This plant was rather late of coming into flower, but the poppy was still later. The *Ranunculus frigidus* had a very beautiful little flower, but it did not bear comparison with those of the other two which have been mentioned. The Purple Saxifrage (*S. oppositifolia*) vied with, and perhaps in the estimation of some exceeded, the spider plant in beauty; its chaste purple colour assisted this very much, but I do not think that this, which is mere colour, admits of comparison with the charm which is imparted to the other by its likeness to a creature so famous for its diligence."

* * * *Calyx spreading; leaves divided.*

8. **White Meadow Saxifrage** (*S. granulata*).—Root-leaves kidney-shaped, with rounded lobes, stalked; stem-leaves nearly sessile, acutely lobed; flowers panicled; capsule partly inferior. Plant perennial. The large milk-white flowers of this species are by no means uncommon during May and June on hedge-banks, meadows, and pastures, especially where the soil is of gravel. The root gives its name to the species, being what botanists term granulated, and consisting of a number of small reddish, downy, round tubers. It is a pretty plant, with slender leafy stems, ten or twelve inches in height. A double variety is a common garden flower.

9. **Drooping Bulbous Saxifrage** (*S. cernua*).—Root-leaves kidney-shaped on long stalks, palmate and lobed; flowers solitary and terminal; capsule superior. Plant perennial. This species is now almost extinct on the only recorded British habitat. Its place of growth is on rocks on the summit of Ben Lawers, at an altitude of 4,000 feet. It is remarkable for producing small reddish bulbs in the axils of its upper leaves. The white flower appears on the slender drooping stem in July, but the plant rarely blossoms in this country, being mostly propagated by its bulbs.

10. **Rue-leaved Saxifrage** (*S. tridactylites*).—Leaves wedge-shaped, 3—5 cleft; stem much branched; flowers terminal, each on a single stalk;

capsule inferior. Plant annual. This little Saxifrage has small snowy-white flowers from April to July, on a stem two or three inches in height. It is very common on old walls, dry barren heaths, and the roofs of cottages in England, but it is rare in the west of Scotland and in the Highlands. The petals are so small as hardly to extend beyond the calyx. The foliage is of a rich green, turning red after flowering. It is thickly set with short hairs, terminated with red globules, which render it very clammy to the touch. It is a very elegant little plant.

11. **Alpine Brook Saxifrage** (*S. rivulâris*).—Leaves 3—5 lobed, palmated, smooth, stalked; stem slender, branched, downy; flowers few; bracts oblong; capsule half inferior. This is a very scarce perennial species, found in Scotland on moist rocks near the summits of Ben Lawers and Ben Nevis, but not in abundance. The only spot where it is known to occur plentifully is on Loch-na-gar, Aberdeenshire. It grows in tufts; the stems, partly leaning on the ground before they rise into the air, root where they touch. The flowers are white, and appear in July and August.

12. **Mossy Saxifrage** (*S. hypnóides*).—Barren shoots long, and usually prostrate; root-leaves 3-cleft, those of the shoots either undivided or 3-cleft, bristle-pointed, and more or less fringed; segments of the calyx pointed. Plant perennial. This is an abundant and most variable species, its leaves assuming so many forms that the varieties have been described as species under several names, and as such several are figured in our Plate 87. The flowers are white, expanding from May to July, on rocky mountainous situations in England, Scotland, and Ireland. *S. platypetala*, *S. elongella*, *S. hirta*, and *S. palmata* may be considered as varieties of this species.

13. **Tufted Alpine Saxifrage** (*S. cæspitósa*).—Barren shoots usually very short or wanting; root-leaves crowded, fringed, 3—5 cleft, with obtuse lobes; calyx segments blunt. In one variety the plant is larger, and in another smaller, but both without barren shoots. In this rare species the white flowers expand from May to July. It grows on the summits of Irish, Scottish, and Welsh mountains, and is probably but an extreme form of the variable Mossy Saxifrage, and, like that, it has a perennial root-stock.

14. **Mossy Alpine Saxifrage** (*S. muscoídes*).—Barren shoots very short, erect; root-leaves linear, blunt, and 3-cleft; stem few-flowered; calyx superior; petals short, scarcely longer than the sepals. Perennial. This plant, which was said by Don to have been found in the Highlands of Scotland, is not a native. It has buff-coloured petals, expanding in May.

15. **Geranium Saxifrage** (*S. geranoídes*).—Barren shoots short; leaves downy and glandular, lower ones, and those of the shoots, on very long footstalks, deeply 3-cleft, the segments either cut or entire; calyx superior. Plant perennial. This Saxifrage is said to have been found on the Scottish mountains many years ago, but the record has not been authenticated.

2. Golden Saxifrage (*Chrysosplénium*).

1. **Common Golden Saxifrage** (*C. oppositifólium*).—Leaves opposite, roundish, heart-shaped, with rounded notches; flowers in small umbels. Plant perennial. This plant, which flowers from May to July, is common by the sides of rivulets, and in wet woods. It is also frequent on some of

1. MOSSY SAXIFRAGE
S. hypnoides
2. M. S.
S. platypetala
3. M. S.
S. elongella
4. M. S.
S. hirta
5. TUFTED ALPINE S.
S. cæspitosa
6. T. A. S.
S. palmata
7. MOSSY A. S.
S. muscoides
8. GERANIUM S.
S. geranoides
9. GOLDEN SAXIFRAGE.
Chrysosplenium alternifolium
10. COMMON G. S.
C. oppositifolium

Pl. 87.

the highest parts of the Highland mountains, near rills. Though a small plant, it often grows in large quantities, and we have seen masses of it on bogs at Tunbridge-Wells, looking quite beautiful as the sun shone on its small clusters of yellow flowers and yellowish-green leaves, so that the plant was like a stream of gold among the greener mosses; while the water-wagtails were pecking at its young buds with great delight, and the willow-wren singing a song of thankfulness for the loveliness of the heathy waste. This plant was renowned among the old herbalists for certain powers which they supposed it to possess, of removing melancholy and such maladies as were presumed to arise from a disordered spleen. It cannot, however, have any powerful medicinal properties, for it is in common use as a salad in the Vosges, where the peasant terms it *Cresson de roche*. Its golden hue is alluded to in several of its European names. The French call it *La Dorine*. It is the *Goldmilz* of the German; the *Goudveil* of the Dutch; the *Gylden steenbrek* of the Danes; and the *Gul stenbråck* of the Swèdes.

2. **Alternate-leaved Golden Saxifrage** (*C. alternifólium*).—Leaves alternate, lower ones somewhat kidney-shaped, upon very long foot-stalks; flowers generally with eight stamens. Plant perennial. This species, which is frequent in Scotland, is rather rare on the boggy lands of England. Its flat umbels of flowers are of a deep golden yellow, and may be seen from April to June. The stems are usually four or five inches in height, but in some places where the plant is luxuriant they are much higher, and it there overtops its frequent companion, the commoner Golden Saxifrage. The foot-stalks of the lower leaves of this species are very long, scarcely less than half the length of the stem. The stem, which is erect at the upper part, is often prostrate at the base. Sir Wm. Hooker and Dr. Arnott describe the common species as of a paler colour than this in all its parts, and it is so usually; but in some places, as in an alder copse on Reigate Heath, mentioned by Mr. Luxford, it appears that this is of the paler tint, and that the bright yellow-green of its upper leaves, and the pale yellow flowers, contrast there with the darker green of *C. oppositifolium*.

Order XXXVIII. UMBELLIFERÆ—UMBELLIFEROUS TRIBE.

Calyx superior, 5-toothed, often reduced to a mere margin; petals 5, sometimes of very unequal size, the outer being the largest; stamens 5, alternate with the petals, curved inwards when in bud; ovary inferior, 2-celled, crowned by a fleshy disk, which bears the pistils and stamens; styles 2; stigmas small; fruit composed of 2 carpels, or seed-vessels, which adhere by their faces to a central stalk, from which they separate below, when matured, and are attached by the upper extremity only. These carpels, or seed-vessels, are what are inaccurately termed, by persons unacquainted with botany, the seeds. They are variously shaped, and each carpel is marked by five vertical ridges, with four intermediate ones; these ridges, which are in some cases very apparent, can in others hardly be traced. They are separated by channels, beneath which are placed minute slender brown lines embedded in the skin of the seeds. These are termed *vittæ*. When

magnified, they are found to be tubes filled with oil, and it is the substance contained in these cells which gives the pungency to the caraway, coriander, and other strongly-flavoured umbelliferous seeds. If the carpel is cut across when ripe, the ends of these tubes, or vittæ, may be seen by the aid of the microscope, looking like little openings, through which a dark oily matter is slightly oozing. Each carpel has a single seed, attached by its upper extremity, and containing a horny albumen—that is, the white farinaceous substance which constitutes the chief bulk of some seeds.

The flowers of the umbelliferous tribe are usually small, and on short stalks, all proceeding from one point, like the rays of an umbrella. Each little cluster is called an umbel. When several of these are arranged around the top of a common stalk, they form a compound umbel, the larger being called a general, the smaller a partial umbel.

This large and important order is one in which there is much general resemblance in the species. It is easy enough to associate them into one large tribe, for even an unpractised botanist easily recognises a plant as umbelliferous by its most obvious features and mode of growth. This general similarity, however, renders the division into genera and species very difficult, as the special distinctions are much less marked than those of other flowering plants. These distinctions are not only few in number, but their investigation requires patient and careful attention. Not only the flowers, leaves, and stems must be looked at, but the fruits, seeds, vittæ, the albumen, the faces of the halves of the fruit where they touch each other (the commissure), all form important distinctions, which must be studied by those who would fully understand the order.

The British Umbelliferæ are all herbaceous plants, and until recently the tribe was not known to include a shrub or tree; but a shrubby plant of this order is now introduced into our gardens, called the Black Parsley. The species are natives chiefly of the northern parts of the northern hemisphere, occurring in groves, thickets, plains, marshes, meadows, and waste places. Their foliage is in general of an unwholesome character, and is very often highly poisonous, as in the Hemlock and Dropwort. Notwithstanding this the roots and stems of many, and the leaves of a few, are useful as food. Such are the roots of the Carrot and Parsnip, the leaves of Parsley, and the stems of Celery. The fruits are never noxious, and often furnish an agreeable aromatic, as the Coriander and Caraway. A stimulant gum resin exists in the stems of several species, which, as in the Asafœtida plant, is a valuable medicine. Several even of those umbelliferous plants which are poisonous afford valuable remedies to the skilful practitioner. Besides these uses of the tribe, it contributes materially, especially in early spring, to the beauty of our native vegetation. The finely-divided, elegant foliage is at this season of a most tender green hue, and even the small flowers lend a charm to the hedges and meadows where they are so numerous. The clusters or umbels of blossoms are usually surrounded by a green involucre, and the petals are pink, yellow, green, or white, or rarely blue. Our native species are mostly white-flowered. About thirteen hundred species are enumerated as belonging to this extensive family in its world-wide distribution, and of these only about sixty occur in the British Isles.

Umbels simple or imperfect; albumen not furrowed in front; fruit without vittæ.

1. WHITE ROT (*Hydrocótyle*).—Fruit of two flat nearly round carpels, each with five slender ridges; calyx-teeth obsolete; petals egg-shaped, entire, acute. Name from the Greek, *hydor*, water, and *kotyle*, a cup, from the place of growth, and form of the leaves.

2. SANICLE (*Sanícula*).—Flowers in panicled tufts, the outer without stamens, the inner without pistils; fruit egg-shaped, thickly covered with hooked prickles; petals inversely egg-shaped. Name from the Latin, *sano*, to heal, from the supposed virtues of the plant.

3. ERYNGO (*Eryngium*).—Flowers in a dense prickly head; fruit egg-shaped, covered with chaffy scales. Name from the *eryngion* of Dioscorides.

* * *Umbels usually compound; fruit of two flattened lobes, not prickly or beaked; with or without vittæ; albumen solid.*

4. WATER HEMLOCK (*Cicúta*).—Fruit of two almost globose carpels, with five broad, flattened ridges; general involucre of very narrow leaves, often wanting; partial involucre of many leaves. Name from the Latin, *cicuta*, a hemlock stalk.

5. CELERY (*Apium*).—Fruit roundish, egg-shaped, of two almost distinct carpels, with five slender ridges; involucre none. Name from the Latin of this or some allied plant.

6. PARSLEY (*Petroselínum*).—Fruit egg-shaped; carpels each with five slender ridges; general involucre of few, partial of many leaves. Name from the Greek, *petros*, a rock, and *selinon*, parsley.

7. HONEWORT (*Trínia*).—Fruit egg-shaped; carpels with five prominent ribs; flowers having stamens and pistils on different plants. Named from Dr. Trinius, a Russian botanist.

8. MARSH-WORT (*Helosciádium*).—Fruit egg-shaped, or oblong; carpels each with five slender prominent ridges; general involucre none; partial of many leaves. Name from the Greek, *helos*, a marsh, and *skiadion*, an umbel.

9. STONE PARSLEY (*Sison*).—Fruit egg-shaped; carpels with five slender ridges; petals broad, deeply notched, with an inflexed point; involucres of many leaves.

10. GOUT-WEED (*Ægopódium*).—Fruit oblong; carpels with five slender ridges; involucre none. Name in Greek signifying goat's-foot, from some fancied similarity of the leaves.

11. CARAWAY (*Cárum*).—Fruit oblong; carpels of five slender ridges; general involucre none, or rarely of one leaf, partial none. Name from Caria, a country of Asia Minor.

12. EARTH-NUT (*Búnium*).—Fruit oblong, crowned with the conical base of the erect styles; carpels with five slender, blunt ridges; general involucre none, partial of few leaves. Name from the Greek, *bounos*, a hill, from its chief place of growth.

13. BURNET SAXIFRAGE (*Pimpinélla*).—Fruit oblong, crowned with the swollen base of the reflexed styles; carpels with five slender ridges, and furrows between; general involucre wanting, or rarely of one leaf; partial involucre none. Name of doubtful origin.

14. WATER PARSNIP (*Sium*).—Fruit nearly globose; carpels with five

slender, blunt ridges; involucres of several leaves. Name from the Celtic, *siw*, water.

15. HARE'S EAR (*Bupleúrum*).—Fruit oblong, crowned with the flat base of the styles; carpels with five prominent ridges; partial involucre very large. Name from the Greek, *bous*, an ox, and *pleuron*, a rib, from the ribbed leaves of some of the species.

* * * *Umbels compound; fruit not prickly, nor beaked, nor flattened; vittæ between the ribs.*

16. WATER DROPWORT (*Œnánthe*).—Fruit egg-shaped, cylindrical, crowned with the long straight styles; carpels with five blunt corky ridges; flowers somewhat rayed, those of the centre only being fertile. Name from the Greek, *oinos*, wine, and *anthos*, a flower, from the scent of the blossom.

17. FOOL'S PARSLEY (*Æthúsa*).—Fruit nearly globose; carpels with five thick-keeled ridges, and crowned with the reflexed styles; partial involucre of three leaves, all on one side, usually drooping. Name from the Greek, *aitho*, to burn, from its acridity.

18. FENNEL (*Fœnículum*).—Fruit oblong; carpels with five bluntly-keeled ridges; involucre none. Name from the Latin, *fœnum*, hay, from its odour.

19. MEADOW SAXIFRAGE (*Séseli*).—Fruit oval or oblong, crowned with the reflexed styles; carpels with five prominent blunt ribs; partial involucre of many leaves. Name given by the Greeks to some allied plant.

20. LOVAGE (*Ligústicum*).—Fruit elliptical; carpels with five sharp, somewhat winged ridges; involucres, both general and partial, of several leaves. Name from Liguria, where the cultivated species abounds.

21. PEPPER SAXIFRAGE (*Siláus*).—Fruit oval; carpels with five sharp, somewhat winged ribs; petals scarcely notched; general involucre of one or two leaves, partial of several. Name of doubtful origin.

22. SPIGNEL (*Méum*).—Fruit elliptical; carpels with five sharp winged ridges; petals tapering at both ends; general involucre of few, partial of many leaves. Name given by the Greeks to this or some similar plant.

23. SAMPHIRE (*Crithmum*).—Fruit elliptical; carpels spongy, with five sharp winged ridges; leaves of both general and partial involucres numerous. Name from the Greek, *krithé*, barley, which grain the fruit was thought to resemble.

* * * * *Umbels compound; fruit of two flattened carpels, which are united by their faces, not prickly or beaked; with or without vittæ.*

24. ANGÉLICA.—Fruit with three sharp ridges at the back of each carpel, and two at the sides, expanding into an even border; general involucre of few, partial of many leaves. Named angelic, from its medicinal qualities.

25. HOG'S FENNEL (*Peucédanum*).—Fruit flat, with broad border; carpels with three elevated ribs on the back, and two side ones spreading into broad wings; partial involucre of many leaves. Name from *peuce*, a pine-tree, and *dono*, a gift, on account of the resin which exudes from some of the species.

26. PARSNIP (*Pastináca*).—Fruit very flat, with a broad border; carpels with three slender ridges on the back, and two near the outer edge of the margin; general and partial involucre usually of one leaf. Name from *pastus*, pasture.

27. Cow Parsnip (*Heracleum*).—Fruit very flat, with a broad border; carpels with three ribs on the back, and two distant marginal ones; general involucre falling early, partial of many leaves. Named from Hercules, who is said to have used this or some similar plant medicinally.

28. Hart-wort (*Tordylium*).—Fruit flat, with a broad thick border, either waved or notched; carpels with three faintly-marked ribs, and two distant marginal ones. Name given by the Greeks, and thought to signify "lathe" and "turn," because the seeds look as if turned in a lathe.

* * * * * *Umbels compound; fruit globose, not prickly; carpels scarcely separating, scarcely ribbed, and without vittæ; albumen solid.*

29. Coriander (*Coriándrum*).—Fruit globose; carpels cohering; general involucre none; partial on one side. Named from Greek, *koris*, a bug, from the unpleasant odour.

* * * * * * *Umbels compound, fruit short and thick, not prickly nor beaked; somewhat flattened, with or without vittæ, albumen furrowed.*

30. Hemlock (*Conium*).—Fruit broadly egg-shaped; carpels with five prominent waved ridges; general involucre of few leaves, partial of three leaves on one side. Name, the Greek word for the plant.

31. Bladder-seed (*Physospérmum*).—Fruit of two globose kidney-shaped carpels, with five slender ridges; involucres both general and partial, of 1—5 leaves. Name from the Greek *physa*, a bladder, and *sperma*, a seed.

32. Alexanders (*Smyrnium*).—Fruit of two kidney-shaped carpels, each having five prominent ridges. Name from the Greek *smyrna*, myrrh, from the scent of some of the species.

* * * * * * * *Umbels compound; fruit oblong; usually more or less beaked; with or without vittæ.*

33. Shepherd's-needle (*Scándix*).—Fruit contracted at the sides, with a very long beak; carpels with five blunt ridges; general involucre none, or of one leaf; partial of several leaves, longer than the flowers. Name, the Greek name of the Chervil.

34. Beaked Parsley (*Anthríscus*).—Fruit narrowed below the short beak; carpels without ridges; beak with five ridges; general involucre none; partial of several leaves. Name, the Greek name for this or some allied plant.

35. Chervil (*Chærophyllum*).—Fruit contracted at the sides, with a short beak; carpels with five blunt ridges; partial involucre of several leaves. Name, in Greek, signifying a pleasant leaf, from the perfume of some species.

36. Cicely (*Myrrhis*).—Fruit contracted at the sides, with a deep furrow between the carpels; carpels with five sharply-keeled ridges; general involucre wanting, partial of many leaves. Name from the Greek *myrrha*, on account of its fragrance.

* * * * * * * * *Fruit not beaked, clothed with prickles, or with a prickly involucre, vittæ two or more together.*

37. Carrot (*Daucus*).—Fruit slightly flattened; carpels united by their faces, oblong, with bristly primary ridges, secondary ridges equal, winged

with a close row of spines; general involucre very long, often pinnatifid. Name, the Greek name of the plant.

38. BUR PARSLEY (*Caúcalis*).—Fruit slightly flattened; carpels united by thin narrow edges, ridges bristly with 1—3 rows of hooked prickles between. Name, the Greek name of the plant.

39. HEDGE PARSLEY (*Torilis*).—Fruit slightly contracted at the sides; ridges of the carpels bristly, with numerous prickles; general involucre wanting; partial of many leaves. Name of doubtful origin.

40. PRICKLY SAMPHIRE (*Echinóphora*).—Fruit egg-shaped in a prickly receptacle, and with a prickly involucre; carpels with five ribs. Name from the Greek *echinos*, a hedgehog, and *phero*, to bear, from the prickly nature of the fruit.

* *Umbels simple or irregular*

1. WHITE-ROT (*Hydrocótyle*)

Common White-rot (*H. vulgáris*).—Leaves circular, with central stalk, somewhat lobed and crenated; heads of about five flowers; root perennial. The large leaves of this plant are often to be seen lying on their creeping stems covering large spots on the surface of the mossy bog. They are bright green, smooth and glossy; and sometimes an inch and a half across. This plant flowers in May and June, but the blossoms are so small that it is better known by its leaves than by the pinkish-green petals of the little corollas. Sometimes the cluster consists of but two or three flowers, and indeed they are not sufficiently numerous at any time to suggest the idea of an umbel. The plants in this first division of the umbelliferous plants, comprehending this and the two following genera, are very unlike, in their general appearance, all those which follow. They are scarcely umbelliferous, but as the structure of the individual flower and fruit agrees with that of plants of that character, they are classed with them.

The Common White-rot was in former days considered very prejudicial to sheep, and several of the names by which it is known in country places convey this opinion. It is called Sheep-killing Penny-grass, Sheep's Bane, Marsh Penny-wort, and Flowk-wort. Sheep are now well known to leave it untouched, but as the liver-fluke (*Distoma hepatica*), often so injurious to these animals, is found on marshy lands, where this and some other acrid plants abound, the malady was erroneously ascribed to the vegetation. The French call the White-rot *Hydrocotylé*, the Germans *Wassernahel*, and the Spaniards term it *Sombrera de aqua*, probably from the form of its leaves, which is something like that of the *Sombreros*, which they wear on their heads to shade them from the sun. To its round leaf, slightly depressed in the centre, the plant owes its old name of Water-can. An Eastern species, *H. asiática*, is commonly used in India as a culinary vegetable, as well as a medicine; and the juice of *H. umbellata* is also administered in small doses. The flavour is said to be agreeable, and the odour aromatic. Lamarck describes a species of White-rot, called the Gum-bearer, now termed *Bolax gleboria*. A quantity of semi-transparent gum oozes from its stem, like that produced by some fruit-trees.

1 WHITE ROT
Hydrocotyle vulgaris
2 WOOD SANICLE
Sanicula europæa
3 SEA HOLLY
Eryngium maritimum
4 FIELD ERYNGO
E. campestre
5 WATER HEMLOCK
Cicuta virosa
6 WILD CELERY
Apium graveolens

2. Sanicle (*Sanícula*).

Wood Sanicle (*S. europæa*).—Leaves mostly from the root, palmate, with the lobes three-cleft and cut; fertile flowers sessile; root perennial. The flowers of this plant form rather a panicle than an umbel, not having that regular arrangement around the top of the stem which is one of the usual characteristics of the umbelliferous tribe; and some of the flower-stalks are long, and others short. The stem is about a foot, or a foot and a half high, and the large leaves of deep dull green. Nor is there any brightness of hue on any part of the plant, though its form is exceedingly elegant. It is frequent in woods, especially near streams, or in very moist places; and is in flower during May and June. The blossoms are small, of dull white when expanded, but while young, tinted more or less with chocolate colour or pink. Its name, *Sanicula*, significant of its healing virtues, has its synonym in most of the countries of Europe, and may indicate that the old English proverb, "He that hath Sanicle, needeth no surgeon," would have found as ready a credence in other countries as in ours. Gerarde says of it, "It is used in potions which are called vulnerarie potions, or wound drinks, which make whole and sound all inward wounds and outward hurts." There is some slight bitterness and astringency in the leaves, as well as some degree of acridity; and it is probable that its application to wounds would do more harm than good. Sir J. E. Smith says that it partakes of that virose acrimony which is found in most umbelliferous plants growing on moist fat soils. Its flavour is not only disagreeable, but leaves a burning sensation on the tongue. The French call this plant *La Sanicle*, and the Germans *Der Sanikel*. It is the *Sanicola* of the Italians, and the *Sanikel* of the Dutch.

3. Eryngo (*Eryngium*).

1. **Sea Eryngo, or Sea Holly** (*E. marítimum*).—Root-leaves roundish, plaited, spiny, stalked, upper ones palmate, lobed, clasping the stalk; leaves of the involucre 3-lobed; scales of the receptacle 3-cleft; root perennial. This plant is well called Sea Holly. No one could look at its thick, rigid, spiny leaves without thinking of those of our well-known evergreen. Their colour, however, is very different; for it is not dark and glossy, but of sea-green glaucous hue, beautifully veined with white. The flowers look something like thistles; and it is well described by the poet—

> "Eryngo, to the threat'ning storm,
> With dauntless pride uprears
> His azure crest and warrior form,
> And points his spears."

The small blue blossoms grow in a dense head, on a scaly receptacle. They are produced in July and August. The stem is about two feet high, and the seeds are aromatic.

This handsome plant is not unfrequent on the sandy shores of England; and is often sold among the shells and other marine curiosities brought by boys to the beach. It is by no means a fragile flower, and preserves its form and appearance so well throughout the winter, that a good bouquet for that season may be made of this plant, mingled with carline thistle, sea lavender, and sea-side grasses. It is very tough in texture, and difficult to gather;

and the large, fleshy, somewhat bitter roots penetrate the hot sand to some depth. These roots were formerly much prized as a sweetmeat, and believed to have many tonic properties. The oldest writers on plants, like Dioscorides, praised their restorative virtues; and in Queen Elizabeth's time, when prepared with sugar, they were called Kissing Comfits. Shakspere represents Falstaff as referring to them by this name. Boerhaave considered them highly tonic, and they are still prized by the Arabs. The candied roots were introduced into general use by Robert Buxton, an apothecary; and the town of Colchester was long famous for this sweetmeat. Even as lately as the year 1836, an immense quantity was sold, in consequence of the inhabitants of that town having presented a box of the Eryngo roots to a member of the Royal Family who passed through the place. The root is little used now, but is still recommended in some cases, by respectable authorities, as a good medicine.

The young tops of the Sea Holly are eaten in Sweden like asparagus; and Belon says in his "Singularities," that the people of Crete eat them as food. In the United States, the roots of an aquatic species, *E. aquáticum*, are very much used medicinally; and those of *E. fœtidum* are in Jamaica esteemed a febrifuge. Our seaside species is not common on the shores of Scotland generally, though more frequent on the Western coast. It occurs in Ireland and the Channel Islands, and is a common plant on the shores of several European countries. It is called in France *Panicaut;* in Germany, *Krausdistel;* and in Holland, *Kruisdistel.* It is the *Eringio* of the Italians, and the *Cardo corredor* of the Spaniards.

2. **Field Eryngo** (*E. campéstre*).—Root-leaves somewhat ternate, lobes pinnatifid; stem-leaves clasping, twice pinnatifid, all with spiny teeth; leaves of the involucre spinous; scales of the receptacle entire. Plant perennial. This rare species much resembles the Sea Holly, but is more bushy, taller, and more slender. It formerly grew in sandy fields at Stonehouse, in Devonshire; but is now extinct there, as it also is on a spot near Daventry, where it once grew. It is believed to be truly wild only in Kent, and to have been so formerly in Suffolk; in the other stations it is thought to have been introduced with ballast. The petals are purplish, or white, and may be seen on the chaffy receptacle in July and August. Its roots, when dried and powdered, are said to form the chief ingredient of a medicine celebrated in Spain as a remedy against the bites of serpents. Gerarde said of our seaside species that it was "good for such as were bitten by any venomous animal."

* * *Umbels compound; fruit of two flattened lobes, neither prickly nor beaked.*

4. WATER-HEMLOCK (*Cicúta*).

Cowbane, or Water-Hemlock (*C. virósa*).—Stem hollow, branched; lower leaves on long stalks, pinnate; upper ones twice ternate; umbels stalked. Plant perennial. Like many of our umbelliferous plants which grow in the water, this herb is highly poisonous, and various instances of its fatal effects are on record. Some animals, as sheep, goats, and horses, eat it with impunity, but to cows it proves deleterious. Cattle are usually guided by their instincts to the selection of plants which afford them wholesome and nutritious food; and when this Water-Hemlock is fully developed, and has

its strong and peculiar odour, they will not touch it. In the early spring, however, the scent is faint, and kine will sometimes eat it among the green herbage of the pasture, and suffer much from doing so. In the moist meadows of Sweden, where it is abundant, the horned cattle were subject every spring to a sickness and mortality, of which the cause was long unknown. Linnæus, with his usual sagacity, detected it, and recommended the owners of these animals to keep them on the upland pastures during the spring, bringing them, when the Cowbane was fully matured, into the lowland meadows. The advice was taken, and a great annual loss to the grazier thus prevented by the science and observation of the botanist. The flat-topped umbels of minute white flowers appear in July and August. The Spotted Cowbane of North America (*C. maculáta*) is said to possess the medicinal properties of Hemlock, and is used in that country for the same purposes. The French call the Water-Hemlock, *La Cicutaire;* the Germans, *Die Wüthérick.* It is termed in Holland *Water Scheerling.*

5. Celery (*Ápium*).

Smallage, or Wild Celery (*A. gravéolens*).—Stem furrowed and branched; leaves shining, pinnate or ternate, lower leaves on long stalks; flowers in terminal or axillary umbels. Plant biennial. Difficult of determination as plants of the Umbelliferous tribes usually are, the Wild Celery is immediately recognised, whether in its fresh or dried state, by its strong odour, so exactly resembling that of the well-known garden vegetable. It is the origin of that useful edible plant, but when growing wild, is not only acrid and disagreeable, but is believed to be, if near fresh waters, highly deleterious. Climate and soil, however, often affect the wholesomeness of plants, and Wild Celery is eaten in some countries. In the melancholy adventures of the missionaries, who with Captain Gardiner perished from want at Tierra del Fuego, the generous men who risked their lives that they might carry the Truth to the natives were glad to feed on the Wild Celery which they found, and which the surgeon who accompanied the expedition did not seem to find unwholesome. Our Wild Celery grows commonly about the ditches or rivers, or moist marshy lands, of England, especially near the sea. The stem is usually one or two feet high, and the clusters of small white flowers are in blossom from June to September. The umbels are often sessile; the glossy leaves are of bright green.

The Garden Celery is rendered wholesome by blanching. This must be done by shielding the plant from light. The office of the leaves of plants is to expose the sap, which they derive from the stem, to the light and air, and these enable them to develop their green colour. The necessity for light and air in colouring plants is apparent from the circumstance that plants turn towards the sun, seeking light, as well as from the fact, which every observing person must have noticed, that leaves which grow in comparative darkness are of paler green. It is thus that we see the green plant in some crowded court of London looking paler than its compeer in the country would do; and thus, that when some stray branch of ivy finds its way into the tower or belfry, and grows there, it is less green and glossy than the verdant ivy which encircles the outer wall. Professor Lindley has explained

the effect of blanching so well, that we cannot do better than present his words to our readers. "If," he says, "you cause a plant, or any part of a plant, to grow in total darkness, it will be entirely destitute of greenness; or, in other words, the substance of the plant will remain of its original yellowish white, because no green matter can be formed but by the action of light; and if a part already green is kept for a long time in darkness it will become yellowish-white, in consequence of all its green being destroyed by the peculiar action of the atmosphere upon plants in darkness. This is the explanation of blanching. But mere loss of colour is not the only consequence of plants being kept in the dark. Poisons, when it is the nature of the plants to yield poisons, are all formed in leaves by the action of light; the absence of this wonderful agent will therefore prevent the formation of poisons, as well as the formation of green colour; and hence blanching renders poisonous plants harmless. Thus in the Celery, but a small portion only of the leaves is exposed to the light; the whole of the stem and of the lower part of the leaves is buried in the earth; the small quantity of noxious matter that might be formed by the few leaves which are allowed to bask in the sun, has to pass down the buried stalks of the leaves before it can reach the stem, where it would be laid up; but the leaf-stalk of the Celery is very long, and anything which has to filter from the upper part of such a leaf to its bottom, has to take a long journey, in the course of which it is constantly under the destroying influence of darkness; so that before it can reach the stem it will all have perished."

The cultivated Celery often attains a very large size; and a head of this plant, which was reared in the neighbourhood of Manchester, is stated to have weighed nine pounds, inclusive of the roots and leaves, and to have measured four feet and a half in height. There are several varieties in the kitchen-garden, as the red and white upright kinds, and the more hardy turnip-rooted Celery, or *Celeriac*, of which the root is the only edible part. This is much prized in Germany, either as a boiled vegetable, or sliced and eaten cold with vinegar, when it makes an excellent salad. Though rarely cultivated in this country, it is imported occasionally from Hamburgh.

The blanched footstalks of the leaves are the portions of the Celery usually seen at our tables; but the Italians use the unblanched leaves in soups; and the seed is so strongly flavoured, that it is sometimes substituted in cooking for the succulent stalks.

6. Parsley (*Petroselínum*).

1. **Common Parsley** (*P. sativum*).—Leaves thrice pinnate, shining; lower leaflets egg-shaped, somewhat wedge-shaped, 3-cleft, and toothed; upper ones lanceolate, nearly entire; partial involucre thread-like. Plant biennial. This well-known garden herb is not truly wild, but is naturalized on rocks and old walls in many parts of the kingdom, especially in the south-west of England. It is worthy of note that the Parsley is nowhere known as an indigenous plant, but only as a cultivated herb, or a naturalized escape from cultivation. This fact appears to show that it has been grown by man for so long a period that it has become widely different from the wild form and the relationship is no longer recognisable. Besides being used as a

1. COMMON PARSLEY
Petroselinum sativum.

2. CORN PARSLEY
P. segetum.

3. HONEWORT
Irinia vulgaris.

4. PROCUMBENT MARSHWORT
Helosciadium nodiflorum.

5. LEAST MARSHWORT
H. humulatum.

6. STONE PARSLEY.
Sium amomum.

7. GOUT WEED
Ægopodium podagraria.

seasoning plant, it is often sown among pasture grasses, to prevent maladies incidental to sheep. Some years since it was extensively planted in fields in Hampshire, for this purpose, with success; and Mortimer, in his work on "Husbandry," mentions the cultivation of this plant in Buckinghamshire, as a preventive to disease in these animals. It is said, when eaten by sheep, to impart an agreeable flavour to their flesh. Hares and rabbits are very fond of its foliage, and will be attracted from a great distance by a large quantity of Parsley. In places where these animals are numerous it is almost impossible to preserve the herb from their depredations. In our country the different varieties of Parsley are used very generally for flavouring dishes, and it has been suggested that the curled variety only should be sown in gardens, because the ordinary form of the plant is so similar to that dangerous weed, the Fool's Parsley (*Æthúsa cynápium*), that mistakes have been made between the two plants, and melancholy consequences have ensued. This noxious plant often infests gardens, and, when growing with the cultivated herb, a careless person might gather the one for the other. The leaves, however, are differently formed, and of darker, duller green hue; and if bruised they emit an odour very different from that of the Parsley. When in flower the plants are easily distinguished, the Fool's Parsley having an involucre of three long, narrow, sharp-pointed leaflets, hanging down on one side, under each partial umbel; while in the Common Parsley, there is usually only one leaflet in the general umbel, and in the partial umbel the few leaflets are as fine as hairs. Professor Burnett remarks, "Parsley affords one, among many proofs, of the impossibility of dividing esculent from poisonous plants, for although eatable and innocuous to man, it is said to be a deadly poison to parrots."

The old herbalists regarded this plant as a valuable remedy against several diseases, and said that its seed was "effectual against the venom of any poisonous creature, and the danger that cometh to them that have the lethargy." The time of its introduction into England is uncertain. It has been said to have been brought into this country about the middle of the sixteenth century, from Sardinia, where it is wild. It received from Dioscorides its name of *Petroselinum*, and the plant was given to him who overcame in the Grecian games. "Sometimes," says an old writer, "Victours had garlondes of it, as Isodore saith Hercules made him fyrste garlondes of this hearbe." Another old author speaks of one in his day, who "would in a braverie wear Parsley in his hat." The French call the plant *Le Persil;* it is *Die Petersille* of the Germans; and the *Petroselino* of the Italians.

An anecdote related some years since shows a use for which Parsley-seed was employed during the Middle Ages. It was customary in those times to flavour cheese with various herbs, as thyme and fennel. It is said of Charlemagne, that travelling once without any retinue, he arrived at a Bishop's palace on a fast day. The Bishop had no fare fitted to regale a monarch, but placed before him some bread and some choice cheese. The King did not appear to relish the appearance of the cheese, and from time to time picked out, with his knife, several small specks which he supposed to be defects in the food, but which were in fact the seeds of Parsley, which had been placed in the cheese to give it flavour. The Bishop ventured to hint

to the King that he was depriving the cheese of its greatest excellence. On this the monarch ate it freely, and liked it so well that he ended by asking the prelate to send him annually a supply of the curd so flavoured; and, lest the merchants should accidentally pack cheeses which were without the parsley seeds, he directed that the cheeses should always be cut in two pieces, in order that the seeds might be seen, while the halves were afterwards to be fastened together with a skewer.

2. **Corn Parsley** (*P. ségetum*).—Lower leaves pinnate; leaflets nearly sessile, egg-shaped, lobed, and serrated; upper leaves entire or 3-cleft; umbels very irregular; fruit strongly ribbed. Plant biennial. This is the truly Wild Parsley, easily distinguished by its slender, branched, tough, and wiry stem, which is from one to two feet high, and by its small pinnated leaves. In August and September it has umbels of little whitish flowers, the rays of the umbel being few and unequal in length. The few small stem-leaves are all that are to be seen in autumn, as those of the root soon wither away. The schoolboy gathers this, with various other somewhat similar plants, all of which he calls Wild Parsley, for the food of his tame rabbits; but its scanty foliage does not furnish a large supply.

7. Honewort (*Trínia*).

Common Honewort (*T. vulgáris*).—Leaves thrice pinnate and shining; leaflets very narrow, often threadlike; involucre none, or of one leaf; ribs of the fruit blunt; root perennial. This is a rare plant, inhabiting dry limestone hills, and is found on St. Vincent's Rocks, near Bristol, and a few other spots in this kingdom. The white flowers appear in May and June, and have their stamens and pistils in different blossoms, and on separate plants. The stem is branched and erect, about six or eight inches high; the root is spindle-shaped, and crowned with the remnants of former leaves. The herbage is glaucous green.

8. Marshwort (*Helosciádium*).

1. **Procumbent Marshwort** (*H. nodiflórum*).—Stem procumbent at the base and rooting; leaves pinnate; leaflets egg-shaped, unequally and bluntly serrated; umbels opposite to the leaves. Plant perennial. Varieties occur of this herb, in one of which the umbels are longer than the flower-stalks, or nearly sessile, and the leaflets bluntly serrate; and in the other the umbels are shorter than the flower-stalks, the leaflets smaller, and more sharply serrated. The streams and rivulets which wander through our green meadows or woods, or lie beneath the shadowing hedgerows, have usually a wealth of vegetation all their own. This is a plant which he who well knows these spots always expects to find there; its branches overtopping the plants which lie on the flat surface of the shallow waters, or growing on the moist soil of their margin. Country people call it Fool's Water-cress, and doubtless it may be sometimes gathered carelessly instead of that wholesome salad herb; for although when in flower it is quite unlike the Water-cress, yet when out of bloom it has some slight resemblance to it. Its pointed and serrated leaves are a good distinction; and it has its distinct features in the umbelliferous growth of its flowers, its hollow stem, and its

leafstalk sheathing around. These latter distinctions never characterize cruciferous plants. The flowers are small and white, appearing in July and August; and the stem is sometimes two feet long. Though generally regarded as a plant containing poisonous properties, yet it was recommended by Dr. Withering to be taken, either alone or with milk, as an alterative medicine. The French call the plant *Berle;* the Germans, *Wassermeek;* the Dutch, *Watereppe;* the Italians, *Sio.*

2. **Least Marshwort** (*H. inundátum*).—Stem creeping; lower leaves finely divided into hair-like segments; upper ones pinnatifid. Root perennial. This plant, which occurs in ponds that are left dry during summer, has stems but a few inches long, and umbels with only two rays of very small white flowers, which are produced in June and July. These and the upper leaves are the only parts of the plant seen above the shallow waters.

9. BASTARD STONE-PARSLEY (*Sison*).

Hedge Bastard Stone-Parsley (*S. amómum*).—Stem erect; lower leaves pinnate; leaflets oblong, cut, and serrated; upper leaflets cut into narrow segments. This Parsley, though rare in Scotland, is found not unfrequently in England, in damp chalky places, on borders of woods, or under hedges. The little cream-coloured flowers expand in August. The umbels of flowers are very small. The whole plant has a very offensive odour, especially if bruised. The fruit, which is egg-shaped, is pungent and aromatic. This plant is the *Berle aromatique* of the French; the Germans call it *Amomlein.*

10. GOUT-WEED (*Ægopódium*).

Common Gout-weed, or **Bishop's-weed** (*Æ. podagrária*).—Stem erect, furrowed; leaves two or three times ternate; leaflets egg-shaped, pointed, and acutely serrated, unequal at the base. Plant perennial. The gardener who has shady or damp places in his garden is often much troubled with this plant; for its creeping root will take such hold of the soil, that it is very difficult of eradication. It has large dark-green leaves and white flowers, and soon grows, if left untouched, to a foot or a foot and a half high. It is common in damp spots and waste places throughout the country, although it is not found far from human habitations. Though a disagreeable weed, it was doubtless introduced by the monks, and had an old repute as a cure for gout, for which malady the German physicians are said still to prescribe it. The creeping root is pungent and aromatic, with some acrimony, and this is the portion of the plant employed. Culpepper says, "Neither is it to be supposed Goutweed hath its name for nothing; but upon experiment to heal the gout and sciatica; as also joint-aches and other cold griefs. The very bearing of it about one easeth the pain of the gout, and defends him that bears it from the disease." The plant also was called Herb Gerrard and Asheweed. The small white flowers should be sought from June to August.

11. CARAWAY (*Cárum*).

1. **Common Caraway** (*C. cárui*).—Partial involucre none; general none, or one-leaved; leaves twice pinnate; leaflets cut into slender segments.

Plant biennial. This is a rare plant in our meadows and pastures; nor is it indigenous, though found in various parts of England and Scotland. The flowers, which are white, grow in rather large umbels, on a stem one or two feet high, in June. The aromatic carpels, known by the name of caraway-seeds, are too often used in cookery, confectionery, liqueurs, and medicines, to need any description, and the plant is often cultivated on their account. The slightly pungent leaves are sometimes used as ingredients in salads, or, like those of parsley, for seasoning dishes; and the root, which is spindle-shaped, is sometimes eaten like the parsnip, but it partakes slightly of the peculiar flavour of the carpels, which would render it unpleasant to some palates, when eaten with cooked meat. According to the old writers, this root is "pleasant and comfortable, and helpeth digestion;" one of them says that the root, "eaten as men eat parsneps, strengthens the stomachs of ancient people exceedingly, and they need not make a whole meal of them neither." He adds that the Caraway should be planted in every garden. The Caraway comfits were also considered as an excellent stomachic when eaten fasting, and were at least a more agreeable one than many others recommended by these "simplers." They were believed, too, to sharpen the eyesight. The French call the Caraway plant, *Carvi;* the Germans term it, *Kümmel;* and the Italians, *Carui.*

2. **Tuberous Caraway** (*C. bulbocástanum*).—Leaves thrice pinnate, with very slender leaflets; general and partial involucres of many thread-like leaves; root tuberous and perennial. This is a rare plant in most parts of this kingdom, and is found chiefly in chalky fields of Hertfordshire, Cambridgeshire, Buckingham and Bedfordshire, though occurring on some of these in great abundance. The white flowers appear in June and July.

3. **Whorled Caraway** (*C. verticillátum*).—Leaves mostly from the root, pinnate, and cut into slender thread-like segments; umbels few, terminal; general and partial involucres very small. Root perennial. The foliage of this plant is not truly whorled, but the segments of the leaflets surround the leaf-stalk in a spreading direction, so as to look like a whorl. The slender stem is about a foot high; and the small white flowers appear in July and August. It is a local plant, and occurs chiefly along the western counties from Argyll southward. It is also found in the Channel Islands, and about Killarney, in Ireland.

12. Earth-nut (*Búnium*).

Common Earth-nut (*B. flexuósum*).—Leaves of the stem few, nearly sessile, with linear segments; general involucre of 1—3 leaves, partial more numerous; both involucres sometimes wanting; styles erect. Plant perennial. This is a pretty and common plant, bearing its terminal umbels of white flowers in May and June. There is something elegant and graceful in its form, and the slight stem is a foot or more high, having a few leaves cut into slender segments. The tubers of the Earth-nut are sweet and esculent; they fatten pigs exceedingly, and being eagerly sought after and rooted up by these animals, the plant is in many country places called Pig-nut. A large amount of farinaceous and nutritive matter exists in these roots; and in time of famine they have been useful in furnishing food for man. Though

1. COMMON CARAWAY
   Carum carui
2. TUBEROUS C.
   C. bulbocastanum
3. WHORLED C.
   C. verticillatum.
4. EARTH NUT
   Bunium flexuosum.
5. BURNET SAXIFRAGE
   Pimpinella saxifraga.
6. GREATER B. S.
   P. magna.

Pl. 90.

we cannot praise their flavour very highly, yet they are much liked by country children, who eat them in their uncooked condition as they would a chestnut, which fruit they are not unlike in flavour. The Italians and Spaniards both call the plant *Castagna di terra;* and it is the *Terre noix* of the French, the *Erdnuss* of the Germans, and the *Ardnoot* of the Dutch. The old writers recommended the powdered root as a remedy for cough. They called the tubers Ground-nuts and Kipper-nuts.

13. Burnet Saxifrage (*Pimpinélla*).

1. **Common Burnet Saxifrage** (*P. saxífraga*).—Root-leaves pinnate; leaflets roundish, sharply serrate or cut; stem-leaves twice pinnate, with linear segments. Plant perennial. The lower leaves of this herb are so like those of the Common Burnet, as to deserve the allusion to that plant contained in its name; those of the root are on long stalks, and those of the stem are often very much divided. The stem is round, one or two feet high, the flower-stalks usually smooth, though occasionally downy. The small greenish-white flowers appear in July and August.

The Burnet Saxifrage is common on dry pastures, and is often to be seen among the turf of those rounded hills which so often occur in our chalk districts. It is remarkable for varying much in the shape of its foliage, owing to some circumstances of soil or season; hence the earlier botanists classed as distinct species forms now known to be mere varieties; and we had formerly *P. major*, *P. minor*, and *P. dissectum*. The root, which is of an astringent nature, is very pungent and even acrid in flavour. Country people consider it a cure for the toothache; and a decoction of the plant has also been long in use as a cosmetic, and probably would not be altogether useless in the removal of freckles and sunburn. This root is much infested by a species of coccus, from which a red colouring matter may be procured. The French call the plant *Le Boucage;* it is the *Pimpinella blanca* of the Spaniards, and is termed by the Germans *Kleine bibernel.*

2. **Greater Burnet Saxifrage** (*P. mágna*).—Leaves all pinnate; leaflets egg-shaped, serrate, somewhat cut, the terminal one 3-lobed; fruit smooth. Plant perennial. This species is much larger than the last, and has an angled stem marked with lines. It occurs in bushy wastes on chalky and limestone soils, but is not so frequent as the Common Burnet Saxifrage. Its white flowers appear in July and August.

The well-known anise used in medicine is often procured from a species of the Pimpinella, which is cultivated in Malta and Spain, whence the seeds are imported into this country. These are also used in flavouring liqueurs, in some sorts of digestive bread, and various articles of confectionery; and the leaves are employed in garnishing dishes, and are put into soups and sauces.

14. Water Parsnip (*Sium*).

1. **Broad-leaved Water Parsnip** (*S. latifólium*).—Stem erect; leaflets unequally lobed, and serrated; umbels stalked, at the summit of the stem; bracts of involucres narrow, and pointed. Plant perennial. This is a large, stout, conspicuous plant, standing up three, four, or even five feet in height

by the water's edge, its flat umbels of white flowers appearing in July and August. The stems are furrowed, and the pinnate leaves are large, and composed of from five to nine distant leaflets.

2. **Narrow-leaved Water Parsnip** (*S. angustifólium*). — Leaves pinnate; leaflets unequally cut, egg-shaped, the upper ones narrower; umbels opposite the leaves, stalked. Plant perennial. This species, though rare in Scotland, is not unfrequent in England. It is a much smaller plant than the last, and very much resembles the procumbent marshwort. It may be distinguished from it by its stalked umbels, and by its having general and partial bracts. Its white umbels appear in July and August.

Though our Water Parsnip is not fitted for food, yet a species of this genus furnished the Skirret of our ancestors. This is the *Sium sisarum*, and it is still occasionally cultivated for its tubers, which are very wholesome when eaten boiled with butter. Our old gardeners and herbalists make much mention of the Skirret; and many old poets, as Michael Drayton, have praised this root. It once found a place in all the best kitchen gardens, but it is now rarely found in England except in cottage gardens; though the Scottish peasant still cultivates it under the name of Crummack. This Skirret is so full of saccharine matter, that a chemist extracted from half a pound of the roots one ounce and a half of pure sugar.

The Skirret is indigenous to China, but was introduced into this country about the middle of the sixteenth century. Worlidge, commenting on it in his work on "Husbandry," written at the latter end of the seventeenth century, calls it "the sweetest, whitest, and most wholesome of roots;" and it is believed to be the plant which the Emperor Tiberius valued so highly as to send for it to the banks of the Rhine. It is too sweet to be generally pleasing to modern palates.

15. Hare's-ear (*Bupleúrum*).

1. **Narrow-leaved Hare's-ear** (*B. aristátum*). — Stem branched; leaves linear-lanceolate, sharply pointed, and 3-nerved; leaves of the partial involucres longer than the umbels, lanceolate, and suddenly tapering to a point, somewhat awned; flower-stalks short, equal. Plant annual. This is a small species, from three to six inches in height, with stiff leaves of a pale yellow green, and marked with lines. They have a pungent flavour. The leaves of all this genus are remarkable among umbelliferous plants as being undivided, the foliage of nearly all the other genera being cut into various divisions and subdivisions. The greenish-yellow flowers appear in July. The plant is rare, and is found on rocks about Torquay, also in Sussex and the Channel Islands.

2. **Common Hare's-ear**, or **Thorow-wax** (*B. rotundifólium*).—Stem branched above; general involucre wanting, partial ones large, bristle-pointed, thrice as long as the flowers; leaves perfoliate, roundish, oval; root annual. This is a singular plant, readily distinguished by its perfoliate leaves of a glaucous green hue, and in July by its large greenish-yellow partial involucres, which are far more conspicuous than the small greenish-yellow flowers which are to be seen on the plant at that season. The root is said to be astringent, and the plant was formerly much used as a vulnerary. The English name

1. WATER-PARSNIP
   Sium latifolium
2. NARROW-LEAVED W. P.
   S. angustifolium
3. NARROW-LEAVED HARES EAR
   Bupleurum aristatum
4. COMMON H. E.
   B. rotundifolium
5. SLENDER H. E.
   B. tenuissimum
6. FALCATE-LEAVED H. E.
   B. falcatum

of Thorow-wax is from the circumstance of a stalk going through, or thorow the leaf, wax being an old word for grow. The French call it *Le Buplèore*, and the Germans *Das Hafenohrchen ;* it is the *Bupleuro* of the Italians, and the *Haazenoor* of the Dutch. Though locally plentiful in cornfields on chalky soils, it is confined to the eastern and southern parts of England, and must be regarded as a rare plant, in spite of its name. It is not found farther north than Yorkshire, nor beyond Somerset in a westerly direction.

Several species of Hare's-ear have been brought from Switzerland, Southern Europe, and Africa, into our gardens, but they are rather singular than ornamental. Thunberg, when in Japan, found a very curious plant of this genus, the *Bupleúrum gigantéum.* He says that the inhabitants of Roode Zand all assured him, with one voice, that there was a bush to be found on the mountain on which grew wonderful products, such as caps, gloves, worsted stockings, etc., of a substance resembling a fine plush. "I importuned," says this traveller, "almost everybody in the neighbourhood to procure me, if possible, some of the marvellous products, and I resolved not to leave the place till I should have unriddled the mystery. In the course of a few days, I had several of the leaves brought me down from the mountains, which were covered with a thick down, and very much resembled white velvet. The girls, who were used to the management of these leaves, began immediately, with singular dexterity and nicety, to strip off this downy coat, whole and entire as it was, without rending it. After it had been taken off in this manner, it was turned inside outwards, when the green veins of the leaf appeared on one side. Accordingly as the leaf was more round or oval, divers of the above-mentioned articles were formed out of it, the shape being now and then assisted a little by the scissors. The stalks of the leaves furnished stockings and ladies' fingered gloves, the smaller leaves caps; so that the matter was not quite so wonderful as it was wonderfully related." Our traveller, resolving to ascertain the exact plant which produced this downy substance, climbed to the highest summits of the mountains, and there found this singular Bupleurum.

3. **Slender Hare's-ear** (*B. tenuíssimum*). — Stem branched; leaves linear, very sharply pointed; umbels very minute, and few-flowered; partial umbels usually overtopped by their involucres; carpels granulated between the ridges. Plant annual. This is a tall slender species, differing from all the others by the little grain-like substances between the ribs of its carpels. It has a wiry solid stem, about a foot high, and produces its umbels of tiny yellowish-green flowers in August and September. It grows on salt marshes, on the south and east coasts of England, extending as far north as Durham, and is of very local occurrence.

4. **Falcate-leaved Hare's-ear** (*B. falcátum*).—Stem hollow, branched above only; lower leaves oblong, or egg-shaped, on long stalks; upper sessile, narrowly lanceolate, partially clasping the stem; partial involucre of five lanceolate, pointed leaves, as long as the flowers. Plant perennial. This species, which produces its minute greenish flowers in July, has a slender stem from one to four feet in height, often unbranched. Its claims to be reckoned as a British plant are not very strong, and it occurs only about fields in Surrey and Essex.

** * * Umbels compound; fruit not prickly, nor beaked, nor flattened.*

16. WATER DROPWORT (*Œnánthe*).

1. **Common Water Dropwort** (*Œ. fistulósa*). — Stem sending out runners from its base; stem-leaves pinnate, shorter than their tubular stalks; umbels of very few rays; universal involucre wanting; fruit tipped with the long rigid styles. Plant perennial. This Dropwort, though rare in Scotland, is a very common English plant. It grows in ditches and rivulets to the height of two or three feet, and is easily distinguished from its allies by its remarkably tubular habit. The lower leaves are entirely beneath the water, and the leaflets of these are flat, but all the rest of the plant is composed of tubes. The flowers, which are greenish-white, expand from July to September, and the angled corky fruits form dense globular heads, each as large as a small marble. Like several other species, this is a poisonous plant. It is, with many similar plants, called by country people Wild Parsley. The French term the Dropwort *L'Œnanthé*, the Germans *Die Rebendolde;* it is the *Druirebloem* of the Dutch, and the *Enante* of the Italians. The plant was said, by Pliny, to smell like the vine in flower.

2. **Callous-fruited Water Dropwort** (*E. pimpinellóides*).—Root of long fibres, studded with round or oval knobs; root-leaves twice pinnate, with leaflets acutely cut, or 3-cleft; stem-leaves simply pinnate, shorter than their stalks; fruit cylindrical, with an enlarged corky base. Plant perennial. This species has a compact umbel of white flowers, the partial umbels being all crowded together. It is from half a foot to three feet in height, and its general involucre has from one to six leaves, but is sometimes wanting; the partial involucres consist of many leaves. Though in its wild state the root is poisonous, yet when the plant is cultivated it loses its noxious properties, and is eaten as food. The knobs then contain a mild farinaceous substance, and have somewhat the flavour of filberts. The plant is grown about Angers, and the roots sold in the neighbouring markets. This species blossoms from June to August, and is tolerably abundant on the pastures of many counties, as in Gloucester, Worcester, Dorset, and Devon, growing occasionally in salt marshes. It is more slender in form than most of the species, and must be considered as a rare plant.

3. **Parsley Water Dropwort** (*Œ. lachenálii*). — Stem erect; root-leaves twice pinnate; leaflets oblong, entire, or wedge-shaped, and bluntly 2—3-lobed; lower stem-leaves 2—3-pinnate, upper simply pinnate; leaflets linear, acute; general involucre of many leaves, sometimes wanting; root perennial, and composed of thick fibres, or spindle-shaped knobs. This plant is not unfrequent on salt marshes, and occurs, though more rarely, in fresh water. The stem is from one to three feet high, and slightly branched; and its flower, which consists of many distinct spherical partial umbels, may be seen from July to September. The root-leaves are very evanescent, but the root and the fruit distinguish the plant. The latter is top-shaped, narrowing gradually at the base, and crowned with the calyx, which bends inwards. It is less common in Scotland than in England.

4. **Sulphur-wort Water Dropwort** (*Œ. silaifólia*).—Root of oblong knobs; radical-leaves twice pinnate; stem-leaves pinnate, all the leaflets

1. COMMON WATER DROPWORT.
   Œnanthe fistulosa
2. PARSLEY W. D.
   Œ. lachenalii.
3. SULPHUR WORT W. D.
   Œ. silaifolia.
4. HEMLOCK W. D.
   Œ. crocata.
5. FINE LEAVED W. D.
   Œ. phellandrium.
6. RIVER W. D.
   Œ. fluviatilis.

linear and acute; fruit nearly cylindrical, with a corky base. Plant perennial. This is a species of restricted range, growing in fresh-water marshes and meadows from Notts, Worcester, and Norfolk southwards. Its branches are tubular, and its branched stem two or three feet high. It flowers in June, and its partial involucres are of many leaves, shorter than the flowers. It has no general involucre. This is the *Œ. peucedanifolia* of some authors.

5. **Hemlock Water Dropwort** (*Œ. crocáta*). — Root perennial, the fibres with large spindle-shaped tubers; root-leaves 2—3-pinnate; stem-leaves pinnatifid; leaflets stalked, variously cut, those of the upper leaves narrower than the more rounded ones of the lower leaves; fruit cylindrical, oblong, without a callous base, and longer than its stalk. This plant is pretty generally known by those who are accustomed to observe wild flowers. It is too tall and large to escape notice, being sometimes five feet, and very commonly three feet in height, and much branched. It has large broad glossy leaflets, various in number and shape, and its large umbels of white flowers appear in July. The juice of its stems, when exposed to the air, often turns yellow, and like most yellow juices in plants indicates noxious properties.

Many fatal disasters have been caused by this plant; cows have been poisoned by eating the roots, and persons unacquainted with plants have eaten it under the impression that it was wild celery, and have died in consequence. Some years since, a number of convicts, working on an embankment near Woolwich, dug up these roots, and as there is nothing in their odour which would give the idea that they were deleterious, they imprudently ate them with their dinner. Seventeen men partook of the repast, all of whom were rendered more or less ill, while to four it proved fatal. John Ray asserted, in one of his works, the poisonous nature of this Dropwort, but his assertion was at that time doubted, though its accuracy was confirmed by some accounts sent him by his friend, "a learned physician," Dr. Francis Vaughan. A case came under the notice of this gentleman, in which seven young men, while fishing in a river, saw and ate the root of the Dropwort; four or five hours after eating it, one of them fell backwards, foaming at the mouth, and he died next morning. Four more were seized soon after, and died on the following morning, without having spoken a word from the time in which the poison had attained its full power in the system; only one escaped uninjured. Dr. Vaughan also mentions that a Dutchman in his neighbourhood was poisoned by boiling and eating the tops of this plant shred into his pottage; he was soon after found dead in his boat. A little Irish boy had forewarned him of the danger of eating it, but the Dutchman asserted that it was good salad in his country; so that, as Dr. Vaughan observes, he doubtless took it for celery, which its leaves much resemble.

Dr. Pickells read to the British Association a paper on the *Œnanthe crocata*, in which he observed, that it was one of the most virulent poisons of the British Flora, adding that it grows in great abundance, particularly in Cork. He had collected records of nearly thirty cases of death caused by eating the root, the quantity taken in one instance being exceedingly

small. The symptoms which preceded death were very appalling, and he thought that this, and not the hemlock, might possibly be the plant used to destroy Socrates, while, from the symptoms of derangement which accompanied its effects, he considered it probable that it was "the insane root which takes the reason prisoner," referred to by Shakspere. Dr. Pickells stated the Dropwort to be as injurious to black cattle and horses as to man. No direct and certain antidote was known; but melted butter, which is popularly deemed efficacious against its effects, had been given in some of the cases which had recovered. Notwithstanding the poisonous properties of the plant, it has been used with success by medical practitioners. Gerarde says: "Beware and take good heed of this and such like simples, for there is no physition that will give it, because there be many excellent good simples which God has bestowed upon us for the preventing and curing of diseases." Dr. Johnson, in his "Flora of Berwick," commenting on this, says, "Despite the advice of the pious Gerarde, modern physicians have given an infusion of the leaves, or the juice of the roots, in leprosy, with success." Goats can eat this virulently poisonous plant with impunity, but it destroys rats and mice, and the roots are used by country people for that purpose. The bruised root is also sometimes applied as a poultice to painful joints.

6. **Fine-leaved Water Dropwort** (*Œ. phellándrium*).—Root fibrous, and biennial; stem erect; leaves thrice pinnate; leaflets egg-shaped, pinnatifid, cut, spreading; those of the submersed ones wedge-shaped, pellucid, cut; umbels lateral, opposite to the leaves; fruit egg-shaped. Not only do the fibrous roots of this plant distinguish it from the preceding, but the leaves, cut into slender pointed segments, are very different from the broad leaves of the Hemlock Dropwort. The upper part of the foliage is of a pale yellowish-green, but the submersed leaves are of a deep, dark, rich green colour. The stem is two or three feet high, very thick at the lower part, and sending out runners; and the flowers are produced from July to September. The plant is not uncommon in ditches and ponds in England, but is rare in Scotland. This species is also poisonous.

7. **River Water Dropwort** (*Œ. fluviátilis*).—Stem floating; leaves twice pinnate; leaflets simple, and pinnatifid; leaflets of the submersed leaves pellucid, wedge-shaped, deeply cut at the end; umbels opposite to the leaves. Plant perennial. This plant, which is commonly found in streams in the middle and south-east of England, is considered by some botanists a sub-species of the preceding. It flowers from July to September.

17. Fool's Parsley (*Æthúsa*).

Common Fool's Parsley (*Æ. cynápium*).—Leaves twice pinnate; leaflets wedge-shaped, pinnatifid, running down the stalk; partial involucre of one leaf longer than the umbel; general involucre none. Annual. This plant, which is also called Lesser Hemlock, is sometimes mistaken for parsley; and as it grows everywhere on cultivated lands, it is sometimes eaten by children, and has proved fatal to them. Some years ago two ladies in Somersetshire, who ate of it in salad, suffered very seriously, though both ultimately recovered. Its deleterious principles are said to depend on the presence in its juices of a peculiar alkaline principle termed *cynapia*. The

1. FOOLS PARSLEY.
Æthusa cynapium.

2. FENNEL.
Fœniculum vulgare.

3. MOUNTAIN MEADOW-SAXIFRAGE.
Seseli libanotis.

4. SCOTTISH LOVAGE.
Ligusticum scoticum.

5. MEADOW PEPPER-SAXIFRAGE.
Silaus pratensis.

6. MEU OR BALD MONEY.
Meum athamanticum.

7. SEA SAMPHIRE.
Crithmum maritimum.

plant has an unpleasant odour, and its much darker green colour, and its more finely-divided leaves, distinguish it at all times from true parsley; and during July and August, when its umbels of white flowers are to be seen, it is well characterized by the involucres of the partial umbels, consisting of three long leaves, which hang drooping all on one side

18. Fennel (*Fœniculum*).

Common Fennel (*F. vulgáre*).—Leaves twice ternate; leaflets pinnatifid; segments thread-shaped, or awl-shaped. Plant perennial. Most persons accustomed to roam by the sea-side, especially if they often wander among cliffs, know the dark yet bright green Fennel, which so often overshadows the thrift and sea lavender, or the sandworts of the sandy soil at the base of the cliffs. The plant grows also sometimes in places a little way inland, near houses and villages, and is found in profusion in many salt marshes, both of the sea and river. Plentiful as it is, and wholly wild as it would seem to be, many botanists consider that it is not truly indigenous; Sir Joseph Hooker is of opinion that it may be native so far as the district between North Wales and Norfolk to Cornwall and Kent is concerned, "but not north of it, nor in Ireland." When we remember how much the plant was prized in former days, and how often still we see the Fennel growing in the cottage or kitchen garden, it is likely that it is rather naturalized than native. As an old herbalist said, "Every garden affordeth this so plentifully, that it needs no description:" he also rejoices that "one good old fashion is not yet left off, viz., to boil Fennel with fish," a custom still preserved in the eastern part of England, where it is served up with boiled mackerel. Some very slight differences exist between the wild and garden plant; the latter is called *Fœniculum dulce*, but it is scarcely distinct, and probably is but a variety.

Parkinson, who wrote his celebrated "Garden of Flowers" in 1629, added to it a treatise on "divers physicall herbes, fit to be planted in gardens to serve for the especial use of a familie." He says of the Fennel: "It is sowne of seede, and abideth many yeeres, yielding seede; the roots also are used in broths, and the leaves more seldome, yet they serve to trimme up many fish meates." He adds elsewhere, that "Fennel is useful to strowe upon fish, as also to boyle and put among fish of divers sortes." He tells us, too, that "Cowcumbers and other fruits are pickled" with it; and that the "seedes are much used to be put in Pippin pies, and divers other such baked fruits, as also unto bread, to give it a better relish." Of its general use as a fish-sauce we have plenty of record in old books. Thus, in "Piers Ploughman," one speaks of "a ferthing's worth of fynkel-sede for fastynge daies." Even yet some remains of its old use are seen in many parts of Kent, where, when mackerel is purchased, the fishmonger sends home with it a branch of Fennel, to be used as sauce. To few modern palates, however, is the Fennel agreeable. A sweet flavour in food seems to have been liked by our ancestors, and this plant has a strong and to us unpleasant sweetness.

Fennel, however, was evidently much liked, and its odour was considered

an addition to that of the nosegay. "There's Fennel for you, and columbines," said Ophelia; and Milton also says:—

> "A savoury odour blown more pleased my sense
> Than smell of sweetest Fennel."

In those days when herbs were commonly strewed over the pathway of the newly-married persons, the Fennel seems to have been one that was usually chosen. Thus we have Michael Drayton saying:—

> "Whilst some still busied are in decking of the bride,
> Some others were again as seriously employ'd
> In strewing of those herbs at bridals used that be,
> Which everywhere they throw, with bounteous hands and free:
> The healthful balm and mint from their full laps do fly,
> The scentful camomile, the verdrous costmary.
> The hot muscado oil, with milder maudlin cast,
> Strong tansy, Fendel cool, they prodigally waste;
> Clear hyssop, and therewith the comfortable thyme,
> Germander with the rest, each thing then in her prime,
> As well of wholesome herbe as every pleasant flower,
> Which Nature has produced to fit that happy hour;
> Amongst these strewing kinds some others wild that grow,
> As burnet, all abroad, and meadow-wort they throw."

The Fennel was esteemed of great medicinal use, and its seeds are carminative. They were much recommended by old writers, when boiled in wine, to relieve those who had eaten poisonous mushrooms, or other herbs; or had been bitten by those terrific creatures, the scorpions and serpents, which our fathers seemed to think lurked in every hedge. Pliny has recorded the uses of Fennel by the ancients. "As for Fennel," he says, in the words of his translator, Dr. Holland, "the serpents have won it much credit, and brought it into name in this regard, that by tasting thereof they cast their old skin, and by the juyce that it yieldeth doe clear their eyes: whereby we also are come to know that this hearbe hath a singular propertie to mundifie our sight and take away the filme or web that overruleth and dimmeth our eyes." Later herbalists and physicians recommended the Fennel root, boiled in milk, as tonic and carminative; and gout and cramp, and yellow jaundice, were directed to be treated by "physic drinks," made in various ways, of roots, leaves, and seeds; while a broth, made of Fennel, was advised for people who were growing too fat, and desired to be made lean. The notion that the use of it gave strength to the constitution is very old. The ancients regarded Fennel as highly restorative, but it is very doubtful whether they intended by that our wild Fennel, or whether the dill or even wild celery was indicated.

The name of Fennel, as well as its older name of Finckle, and also the Anglo-Saxon *fenol* or *fenouil*, and the old German *fenekel*, were all derived from the Latin *fœniculum*. The plant is usually three or four feet in height, but in places where it grows luxuriantly, as on the hills near the sea at Sandgate, in Kent, it is often six feet high, and its beautiful rich dark-green foliage is very airy and graceful. Its umbels of yellow flowers appear in July and August. Besides the variety termed *dulce*, there is a cultivated or dwarf variety called *Finochio*, which is eaten as a salad with oil, vinegar, and pepper. This variety has sometimes very thick stalks, which are blanched

by placing earth around them, and they then form a very pleasant vegetable. This kind is much cultivated in Italy.

Mr. F. A. Paley informs the author that he considers that the plant which the Greeks and Romans used as crowns was certainly celery (*Apium*), the translation Fennel being quite arbitrary. Longfellow, in his little poem called "The Goblet of Life," apparently alludes to our Fennel as the plant in question :—

"Above the lowly plants it towers,
The Fennel with its yellow flowers;
And in an earlier age than ours
Was gifted with the wondrous powers
Lost vision to restore.

"It gave new strength and fearless mood,
And gladiators fierce and rude
Mingled it in their daily food;
And he who battled and subdued,
The wreath of Fennel bore."

19. Meadow Saxifrage (*Séseli*).

Mountain Meadow Saxifrage (*S. libanótis*).—Stem furrowed; leaves doubly pinnate, cut; segments lanceolate, very acute, the lowermost leaflets crossing; general involucre of many leaves; fruit hairy; root spindle-shaped, and perennial. This is a very rare plant of chalky pastures, with a stem of from one to three feet in height. It has been found on the Gogmagog Hills in Cambridgeshire, and on the chalk hills of Herts and Sussex. It is by some writers termed *Libanótis montána*. It bears terminal umbels of small white flowers in July and August.

20. Lovage (*Ligústicum*).

Scottish Lovage (*L. scóticum*).—Leaves twice ternate; leaflets egg-shaped, somewhat rhomboidal, toothed, and serrated; involucre of 5—7 linear lanceolate leaves; calyx five-toothed. Plant perennial. The Lovage is frequent, though local, on the rocky sea-coasts of Scotland and Northumberland. Its leaves grow mostly from the root, and are dull green, opaque, and somewhat succulent, with very large lobed and cut leaflets. The umbels of white flowers appear in July. When bruised the plant emits a strong odour of parsley. The herb is eaten freshly gathered, or prepared as a salad, and the natives of the Shetland Islands, who eat it thus, as well as boiled, call it *Sùnas*. It has an aromatic flavour, but it is somewhat nauseous to palates unused to it, though a Highland gentleman assured the writer, that having from childhood been accustomed to eat it, he regarded it as a great delicacy. Dr. Walker, who remarks that Ray, in his "Synopsis," mentions Highlanders who used to eat it before anything in the morning to preserve them from infection through the day, adds, "and indeed its strong and grateful aromatic taste would plead that in this practice they judged not amiss." The spindle-shaped root is carminative, and the people on the shores where it is plentiful have from time immemorial prized it for its medicinal qualities. Its flavour is very hot and disagreeable, but as in former days it was reputed to be a cure for ague, it was much planted in English gardens, where, as an old writer says, "it groweth huge and great." In its wild state

the stem is about a foot or a foot and a half high, nearly without branches, marked with lines, and often tinged with red. The Highlanders, who call it also Sea Parsley, sometimes chew it as tobacco. The French term it *L'angélique à feuilles d'ache.* It is the *Liebstöckel* of the Germans, the *Lavas Kruid* of the Dutch, and the *Ligustico* of the Italians and Spaniards. The Danes call it *Loestilk.*

21. PEPPER SAXIFRAGE (*Silàus*).

Meadow Pepper Saxifrage (*S. praténsis*).—Leaves thrice pinnate; leaflets lanceolate, entire, or twice cleft, opposite; general involucre of one or two leaves. Root perennial. This is a conspicuous plant, growing to one or two feet in height, its leaves being chiefly at the root, and its dull pale yellow flowers placed at the top of its stem. It is not very frequent, but is found on some damp pastures both in England and Scotland, flowering from May to September. It has a very disagreeable odour, and is apparently not liked by cattle. Sir J. E. Smith remarks: "The whole plant, being fetid when bruised, is supposed, in some parts of Norfolk, to give a bad flavour to milk and butter; but cattle do not eat it, except perhaps accidentally, or in small quantities, though sufficient, it may be, to have the effect in question." Its general appearance is very similar to that of the Lovage.

22. SPIGNEL (*Méum*).

Meu, or Bald-money (*M. athamánticum*).—Leaves long, twice pinnate; leaflets divided into many hair-like segments; general involucre of two or three leaves; partial of many leaves. Plant perennial. The Spignel is pleasantly and powerfully aromatic, the root being especially so. This is shaped like a carrot, and prized for its carminative virtues. It has a sweetish flavour, reminding one of the Melilot; and it is said to communicate this to milk and butter, if, during spring, the cows feed upon it. Sir W. Hooker says that the common name of Bald, or Bald-money is a corruption of Balder, the Apollo of the North, to whom the plant was dedicated. The French call it *L'Ethuse à feuilles capillaires;* the Germans term it *Bärwurz;* and it is the *Meu* both of the Spaniards and Italians. Its Dutch name of *Beerwortel* would indicate that it is sometimes used to flavour malt liquor, which is not improbable. The plant is frequent in the Highlands on dry pastures, and the root is eaten there as an aromatic. It is not rare on mountainous lands in the north of England. It is easily known by its dark thread-like leaves, and its strong odour. It bears yellowish-green flowers in June and July.

23. SAMPHIRE (*Crithmum*).

Sea Samphire (*C. marítimum*).—Leaves fleshy, 2—3 pinnate; leaflets lanceolate, few, narrowed at both ends. Plant perennial. From May to August the greenish-white flowers of this Samphire may be found in thick clusters, but they are not very showy. Clumps of the plant, however, by their foliage, enliven the sea-cliffs on many parts of our coast. On the chalky heights of Dover the plant is abundant, now and then growing within the reach of him who wanders at their base, but more generally springing from rocky crevices at so great a height that he cannot clearly distinguish the

form of leaf or blossom. Thousands of these are seen only by the sea-bird which wings its way above them, or by the adventurous gatherers of samphire. It is not often we could say now of these cliffs :—

"Half-way down
Hangs one that gathers samphire ; dreadful trade !
Methinks he seems no bigger than his head."

And it is well that samphire-gathering, both from the Shakspere cliff and the cliffs at the eastern part of the old town of Dover, is pretty well discontinued. The plant was formerly gathered by suspending a rope from the summit of the cliff, on which a man descended. In the year 1823 a man was thus occupied, when the rope suddenly gave way, and he was dashed to the earth and died immediately. This man had pursued his dangerous occupation during the summers of forty years, and would often talk to visitors of Shakspere and King Lear, jocosely saying that he himself was king in that little domain, for none ventured to gather his samphire. Now and then some adventurous young sailor clambers up the lofty steeps to gather some tufts half-way up, just when those cliffs are looking most beautiful in their summer flowers, and when, in the words of Agnes Strickland :—

"The burnet there securely blows,
And seems to turn away
When o'er her hardy bosom blows
The drifting spray.

"Unbidden there the borage springs,
Grey lichens creep beneath,
And graceful persicaria flings
Her rosy wreath :

"And there the emerald Samphire oft
Appears a tempting sight,
And lures the venturous boy aloft
To scale the height :

"The bugloss buds of crimson hue
To azure flowers expand,
Like changeful banner, bright to view,
By wild winds fann'd."

Not one of our native plants can at all be compared in flavour with this when pickled with vinegar and spices. It is very pleasantly aromatic, both in odour and taste, and very succulent. It is not, however, prized as it was some years since, for it was formerly not only pickled, but eaten raw as a salad, or boiled for the table. Evelyn, in his treatise on "Sallet Herbs," praises it very highly. It has been cultivated on inland spots with success, in sheltered situations where the soil has been sprinkled with powdered barilla. The name of Samphire appears to be a corruption of its old French name *Herbe de St. Pierre ;* the French now call it *Crete marine.* The plant is the *Meerfenchel* of the Germans, and the *Finichio marina* of the Italians. Its stems are usually about half a foot high, and much branched. Both stems and foliage are of a pale green tint. It is a social plant, often forming large masses a yard in diameter on the surface of the cliffs, often but a little above tide-mark. The general notion that it only grows high up the cliffs is a mistaken one. It is a rare plant on the Scottish coasts.

* * * * *Fruit not prickly nor beaked ; much flattened.*

24. ANGELICA (*Angélica*).

1. **Garden Angelica** (*A. archangélica*).—Leaflets narrowly egg-shaped, all sessile, some running so closely together as to form a wing on the stem, terminal one 3-cleft. Plant biennial. This plant, which is the *Angélica officínalis* of many writers, is not truly wild, though usually enumerated in our British Flora, because it has long been naturalized here in consequence

of its frequent culture in gardens in earlier times. It cannot be overlooked, for it is a tall and handsome plant, about three or four feet high, with a remarkably smooth stem. The leaves are of bright glossy green, and it bears umbels of white flowers in July.

Our ancestors prized this Angelica very highly, and its leaf-stalks were very commonly blanched and eaten with bread and butter as celery, or they were dried and preserved with sugar to form the sweetmeat called candied angelica. In Iceland, Siberia, Norway, and Lapland, this plant is still greatly valued as an article of food, and it is very abundant in the north of Europe. The Laplanders, who eat it in various ways, and season dishes with it, give it so many names as quite to perplex the stranger; and in some countries it is frequently called by a name signifying the Holy Ghost. Its names throughout Europe show the high opinion entertained of this aromatic plant, and the belief in its "Angelic" virtues. It is the *Angélique* of the French; the *Angelica*, or *Engelwurz*, of the Germans; the *Engelwortel* of the Dutch; and the *Angelica* of the Spaniards, Portuguese, Italians, and Russians.

It is not only as food but as medicine that the Angelica was and still is valued. It is doubtless carminative and stimulant. The Laplanders believe of this plant, as the Highlanders do of the lovage, that the use of it will lengthen life, and they therefore chew it as they would tobacco. They also mix it with their bread, both because they like its flavour, and consider it a preventive of disease. In our own country it was believed to have wonderful efficacy against pestilence and a variety of disorders. Parkinson says of it, "Having showed you all the herbes that are most usually planted in kitchen gardens for ordinarie uses, let me now adde some others that are also noursed up by many in their gardens to preserve health, to cure such small diseases as are often within the compasse of the gentlewomen's skill, who to helpe their own family and their poor neighbours that are farre remote from Physitions and Chirurgeons, take much pains both to doe goode unto them, and to plant those herbes that are conducing to their desires. Angelica, the garden kinde, is so goode an herbe that there is no part thereof but is of much use, and all cordiall and preservatives from infectious or contagious diseases, whether you will distill the water of the herbe, or preserve or candie the greene stalkes or rootes, or use the seedes in powder or distillations or decoctions with other things." In France, even of late years, the root of Angelica has been prescribed by good authorities as a remedy in diseases of the chest and of sore throat; it was also popularly believed to avert hydrophobia, as well as to remove the effects of intoxication. A plant so universally esteemed of course became allied to some superstitious practices. Thus we find Coles, in his "Art of Simpling," remarks, "that if one hang Miseltoe about his neck the witches can have no power of him. The roots of Angelica doe likewise availe much in the same case, if a man carry them about him, as Fuchsius saith."

2. **Wild Archangel** (*A. sylvéstris*).—Stem furrowed; leaves twice pinnate; leaflets egg-shaped, often somewhat heart-shaped at the base, and serrated; umbels large. Plant perennial. This is a large and noble plant, commonly attaining, in wet places, the height of three or four feet, and in some places rising to that of eight or ten feet. Its stem is of a purplish

1. GARDEN ANGELICA
   Angelica archangelica
2. WILD ANGELICA
   A. sylvestris
3. SEA HOGS FENNEL
   Peucedanum officinale
4. MARSH H. F
   P. palustre
5. BROAD LEAVED H. F
   P. ostruthium
6. COMMON WILD PARSNIP
   Pastinaca sativa

colour, one or two inches in diameter, and covered with a whitish down, which may be easily rubbed off with the finger. Its flowers appear in July, and are white tinged with pink. It is aromatic, but less so than the garden species. It is frequent in moist bogs and marshy places. After the stem is withered a very elegant little fungus often grows on this as well as other umbelliferous plants of damp places. This is the yellow hairy sessile Peziza. It is of a yellowish cottony surface externally, but inside it is grey, and nearly smooth. In dry weather it closes up its tiny cup, and does not look like a Peziza. It is often very pretty in the month of April, on the dead stems of the plant, and on dry sticks in damp woods.

25. Hog's-fennel (*Peucédanum*).

1. **Sea Hog's-fennel**, or **Sulphur-weed** (*P. officinâle*).—Stem round; leaves five times 3-parted; leaflets linear, acute; general involucre 3-leaved, falling early; leaflets very long and narrow. Root perennial. This is a very rare plant of the sea-shore, growing in the salt marshes of Kent and Essex, and conspicuous from July to September by its large umbels of yellow flowers, and its long narrow flaccid leaflets. It has a strong odour of brimstone, which is still more powerful in the roots than in the foliage or flower, though the scent of the roots of some foreign species has far greater strength. Our Hog's-Fennel does not appear to yield much resin, but in warm climates the resin of some kinds is abundant. The plant was in former days considered a good remedy for hypochondriasis.

Professor Balfour, remarking on the salubrious qualities of many umbelliferous plants found on the sea-shore, mentions this as one possessing such qualities. He quotes Dr. Walker's remark on this subject: "Though," says that writer, "I would not propose it as a rule to be depended upon in so dangerous a case as poisons, yet I think it highly probable that all the maritime plants of this class are salutary and excellent. This I am certain of, that none of the umbelliferous plants known to be poisonous are stationed on the sea-shore, all the maritime plants of this class whose qualities are known are innocent; and it is further remarkable that this is not to be ascribed to their dry situation among the maritime rocks, or on the sandy shore, for the celery and sulphur-wort grow on the salt marshes, on as watery a soil as any of the umbelliferous aquatics which are poisonous. Here, I imagine, lies an essential difference between plants that inhabit salt water and fresh." Professor Balfour remarks, that Dr. Walker's conclusions may be too general, though there is certainly much truth in his statements, but further information is necessary before all umbelliferous plants of salt marshes can be regarded as wholesome. We should hardly like to partake of the wild celery gathered from the salt marsh, though it has certainly been eaten with impunity: and Sir Wm. Hooker and Dr. Arnott remark of the root of this Sulphur-wort, that it is reckoned stimulant, but is of dangerous internal use. It is quite certain, as Dr. Walker has observed, that certain plants lose some of their noxious properties when growing on salt marshes, nor is the remark true of the umbelliferous class only. The writer of these pages, when at Pegwell Bay, near Ramsgate, in the course of the summer, found a quantity of the *Ranunculus sceleratus* growing near a salt

pool. While pointing out to some friends this well-known acrid herb, she rubbed her hands with its juices, in order to show its irritating effects, having always produced this very readily in former experiments with the plant. In this instance, however, the juice proved harmless, not even the slightest redness was perceptible on the skin, nor could its application to the skin of any of the party cause any irritation, though several specimens of the ranunculus gathered from various parts of the salt marsh were applied repeatedly.

The Hog's-fennel was well known to the herbalists in Queen Elizabeth's time. They described it as growing plentifully in the low salt marshes near Faversham, in Kent, and recommended both its external and internal use for cramp, palsy, headache, and leprosy. They called the plant also Brimstone-wort. It is in France termed *Peucedane;* in Germany *Haarstrang;* and the Italians and Spaniards call it *Peucedano.*

2. **Marsh Hog's-fennel,** or **Milk Parsley** (*P. palús're*).—Leaves thrice pinnate; leaflets pinnatifid, the segments narrow and pointed; involucres of many leaves; stem furrowed. Plant perennial. This is a very rare plant, found only in a few salt marshes in Kent and Essex. It is milky, and every part abounds with a bitter juice of a most unpleasant odour, as thick as cream, which soon dries into a brown resin. Its properties in our climate are doubtful, and probably dangerous; but the root is said to be used by the Russians for giving a flavour to various articles of cookery, in the same way that we should use ginger. This plant is about four or five feet in height, and bears white flowers in July and August.

3. **Broad-leaved Hog's-fennel,** or **Master-wort** (*P. ostrúthium*).—Leaves twice ternate; leaflets broadly egg-shaped, cut, and serrated; general involucre none. Plant perennial. This plant was called Master-wort by the old writers on plants, because of its supposed sovereign power over manifold diseases, and could it effect relief in half the cases for which they prescribed it, it would indeed be a plant of power. Its properties, however, though thus greatly overrated, were not merely imaginary. Its bitter biting root is still prized by country people as a cure for the toothache, and probably not without reason, as, like many other pungent substances, it would afford at least temporary relief. Some good writers on medical botany consider it an excellent febrifuge, and Lango says that agues have been cured by its use when Peruvian bark was ineffectual. "The root of Master-wort," says an old herbalist, "is hotter than pepper, and is available in cold griefs and diseases. Used as a decoction with wine it is good against all sorts of cold poison, and against all wounds, especially those that come of envenomed weapons."

This is not a truly wild plant, though often found in moist meadows in Scotland; but it was formerly frequently planted in the garden, and was boiled for the table. Its stem is one or two feet high, and its white flowers expand in June. Its large sheaths are very conspicuous, and it has several narrow leaves in the involucres of the partial umbels.

26. Parsnip (*Pastinàca*).

Common Wild Parsnip (*P. sativa*).—Stem furrowed; leaves pinnate, downy beneath; leaflets egg-shaped, cut and serrated, terminal one

3-lobed; involucres none. Plant biennial. The Parsnip is very frequent on chalky or gravelly soils, and is abundant in many parts of the country, growing on field borders, hedge banks, meadows, and sea cliffs. Its leaves are of bright green, and in July, August, and September, it produces its convex umbels of yellow flowers, which are succeeded by oval fruits. It has, when bruised, a strongly aromatic scent; and its fruits, which seem full of oil, will, if tasted, leave a pungent flavour on the tongue; the oil has been expressed and used with success, in cases of intermittent fever. If we draw from the soil its long spindle-shaped roots, we can have no doubt, from its odour, that our plant has some affinity with the well-known edible Parsnip; and tough as it is in its wild state, that culinary vegetable is but the cultivated variety of our native root. In its improved condition the root is full of a pleasant farinaceous substance, too sweet in flavour to be universally relished, though highly nutritious. An old custom prevails of eating this vegetable during Lent, and in the north of Scotland it forms the daily meal of many a group of peasant children, who eat it with much satisfaction when beaten up with milk, and whose sturdy frames and rosy cheeks fully attest the wholesomeness of the diet. Gerarde says that, in his day, good bread was made of the root; and when this is slowly roasted in turf ashes, it forms almost as pleasant a food as the roasted potato. The Parsnip seems to have been more eaten in England in former years than now, and it would still, doubtless, be much cultivated, but that the soil on which it grows is well fitted for the more productive potato, which is more generally liked as food. In the north of Ireland, an agreeable beverage is made from Parsnip roots, brewed with hops, and a very fine spirit has been obtained by distillation from this root. Parsnip wine too was some years ago made in country places, but the writer, who drank of this beverage in early days, is inclined to think that the wine owed much of the excellence of its flavour to the other ingredients which mingled with the root in its composition. This wine is still made in some other countries. Parsnips are sometimes converted into a marmalade.

The variety known as Coquaine Parsnip is very large, its root sometimes running three or four feet into the soil, and attaining three or four inches in diameter, while its mass of foliage looks at a distance almost like a shrub, and proceeds from the whole crown of the root. This kind is extensively planted in the Channel Isles as fodder for cattle; but the smaller-rooted Siam Parsnip is more tender, and better fitted than the others for human food. It has been suggested that the excellence of the Alderney cow, for the purposes of the dairy, may be in great measure owing to its feeding so much on Parsnips.

A light, deep soil, free from stones, is requisite for the growth of this root, and when in October the leaves at its summit are turning dull yellow, and beginning to decay, then the roots are fit for use. It is not, however, absolutely necessary to withdraw them at that season from the soil, as they are not, like the carrot, injured by the frost, and may safely remain in the ground during winter. The French term the Parsnip *Le Panais*, the Germans *Die Pastinake*. It is the *Pinsternakel* of the Dutch, the *Pusternak* of the Russians, and the *Pastinaca* of the Spaniards and Italians.

27. Cow-Parsnip (*Herácleum*).

Common Cow-Parsnip (*H. sphondýlium*).—Leaves pinnated and hairy; leaflets pinnatifid and cut, terminal one somewhat palmated; fruit nearly round and smooth. Plant biennial. Everyone used to the country has seen this large rough-looking plant, standing upon a stem four or five feet in height, among the meadow grass, or growing amidst the bushes of the hedge-bank or copse. The large thick umbels of white or pinkish white flowers appear in July, and the swelling pale green sheaths, which envelop the leaf-stalk, are very conspicuous. It is, as one might infer from its name, a nutritive and valuable herb for cattle, and Mr. Cobbett stated that he had fed six or eight horses for weeks together on this plant. In Sussex it is gathered for rabbits, sheep, and swine, and it is commonly known in that county, as in Kent, by the name of Hog-weed. Horses eat it when on their pasture, but they are not so fond of it as cows are. An attempt has been made in this kingdom to manufacture sugar from the dried stalks of this plant, but it required forty pounds of the stalks to yield one quarter of a pound of sugar, hence the amount of labour required rendered the process too expensive.

This plant is very abundant in some of the colder countries of Europe. The grass plains at the west of Kamtschatka are in September rendered of most singular appearance, by the astonishing height of two withering umbelliferous plants, which give a peculiar character to these wide tracts. They are described as having strong stems, more than fifteen feet high; and they grow in great numbers, and project far beyond the grasses and other herbaceous plants. Dr. Griesbach thinks that they must belong to *Angelica*, and to this genus *Heracleum*. The Kamtschatdales commonly call the latter plant *Ratsch*, sweet herb, and many are the uses to which they apply it; large bundles of the stout stems are collected, and after being peeled, are laid in the sun. During the process of drying they become covered with a sweet white powder, which is esteemed a delicacy. It would be well if these poor people confined themselves to this use of the plant, or to their practice of boiling and eating the young shoots, which taste like asparagus; but they have unfortunately discovered that a fermented spirit may be made from its juices, and they are said to drink a quantity of this liquor, in order to prepare, by a violent excitement, for a dedication of themselves to their deities. Travellers relate that these rude people become, when under this influence, most violently irascible, and that the use of the liquor so affects the mind that they are seized with a violent desire for self-destruction. Dr. George Moore, referring to this and similar usages among those on whom the glorious light of Revelation has never dawned, remarks, "The Thracians used to intoxicate themselves, by casting the seeds of certain poisonous plants into a fire made for the purpose, around which they sat and inspired the narcotic fumes. There can be no doubt that the incantations of witchcraft and magic were generally attended with the practice of burning herbs of a similar kind, that by the aid of poisonous fumigations, the imaginations of those who were subjected to them might be more easily deluded; for when the nervous system is under such influences, perception is confused, and the

mind becomes delirious, and the soul beholds what it either hopes or fears. Hence we see that the transition from intoxication to that kind of inspiration known to belong to the mysteries of heathen priestcraft is most natural."

"Such artificial modes of assisting mental abstraction have," adds Dr. Moore, "been at all periods resorted to. Thus Pliny informs us that the soothsayers were accustomed to chew roots, supposed to be of a certain species of henbane. The Hindoos employ the Indian hemp for the same purpose; and in St. Domingo the supposed prophets chew a plant called Cohaba, that they may be better able to look into the unseen world and perceive the shadow of coming events. Sophocles calls the priestesses of Delphos laurel-eaters, because they were in the habit of chewing the leaves of that plant before they mounted the tripod. The natives of Kamtschatka are said to use the plant *Heracleum sphondylium*, with a view to prepare themselves for dedication to their gods."

A kind of beer for ordinary purposes is also made of this plant, both in Siberia and the neighbouring countries, and it is said by Gmelin, in his "Flora Siberica" to be better than that made of corn.

The Cow Parsnip was formerly called *Madnep;* the French term it *Berce*, the Germans *Heilkraut*, and the Dutch *Heilkruid*. It is the *Spondillo* of the Italians, the *Espondillo* of the Spaniards; and in Russia it is termed *Putschki*. The word *Heracleum* is derived from Hercules, who is said to have brought the plant into some medicinal use, as Achilles is said first to have applied the Yarrow to the healing of wounds. A modern French author has conjectured that Hercules was not only a great hero, but also a superior botanist and doctor; and though this might be difficult of proof, yet it cannot be denied. We know that in later days, towards the end of the seventeenth century, the pilgrims to the Holy Land were tended during sickness in the hospitals prepared for them at Jerusalem, and that knights and soldiers, in imitation of Hercules, Achilles, and other warriors, became physicians to the best of their power, and carefully nursed the sick. The old, tedious histories of knights of the middle ages show how the warriors strove to obtain the best balsamic mixtures, and the celebrated composition called *Baume de commandeur* was made by these knights. True it is that, like Achilles and Hercules, whom they copied, their botanic science was somewhat uncertain, but they won the faith of the patient in their skill, and thus beneficially acted on his body by means of his mind. Doubtless, too, their natural sagacity, aided by that earnest will, which marvellously quickens the human intellect, enabled them often to select appropriate plants for "physic drinks." The soldier would, in the early ages of the world, be likely to practise the art of healing, and to study the nature of the vegetable remedies, for the sake of the companion who might have suffered from the sword of the common enemy.

28. HARTWORT (*Tordylium*).

1. **Small Hartwort** (*T. officinale*). — Outermost petals of the flower with two unequal lobes; partial involucres lanceolate, about as long as the umbels; fruit rough, and the thickened margin distinctly notched. Plant annual. This Hartwort, which has pinkish-white flowers, on a hairy stem,

about a foot high, was described by our early botanists as growing in the neighbourhood of London. Its flowers, which expand in June and July, are very beautiful. Most botanists doubt if it was ever truly wild in this country, and consider the record to be due to confusion with the next species.

2. **Great Hartwort** (*T. máximum*).—Outermost petals with two equal lobes; involucres shorter than the umbels; fruit scarcely notched, but having a thick rim at its margin, and rough with bristles. Root annual. This is a rare plant, found on waste grounds near London, Oxford, and one or two other places. Its flowers are small, and of a pinkish colour, appearing in June and July, and the stem is from two to four feet high. The French call the Hartwort *Le Seseli de Crète.* It is the *Drehkraut* of the Germans, and the *Gemein Kriezlaad* of the Dutch. A very singular genus of plants, named by Linnæus *Hasselquista*, after his friend Dr. Frederick Hasselquist, is supposed to be but a monstrous form of the Hartwort.

* * * * * *Fruit globose, without prickles; carpels scarcely separating.*

29. CORIANDER (*Coriándrum*).

Common Coriander (*C. satívum*). — Stem erect, leafy, round, and marked with lines; lower leaves twice pinnate and cut; upper ones with segments more numerous, the segments of the upper leaves being hair-like and rigid. Plant annual. The Coriander has so long been found growing without culture in several places of this kingdom, that it is enumerated among wild plants, though it has doubtless escaped from cultivation. It occurs on waste places and fields, but chiefly near towns, and seems more frequent in the south and east of England, having been much grown there. Its stem is about a foot or a foot and a half high, and its white blossoms may be seen in June. The plant may be known by its very singular and pleasantly aromatic fruit, which, when fully grown, is a little ball, marked with a few ribs. The foliage has a strong and offensive odour, which has suggested the name. In the cottage garden there linger yet

> "Sweet chervil's cottage-valued weed,
> And Coriander's spicy seed."

These seeds are used to disguise the flavour of medicines, and form an ingredient in curry powder, and when covered with a coating of sugar, constitute the well-known Coriander comfits. To render their flavour milder, the seeds were formerly steeped first in wine, and afterwards in vinegar. The flavour of the aromatic seeds is better liked in some other countries than in ours, and Feuillée says that in Peru they are used to so great an extent in the cookery, that an insupportable odour arises from some of the dishes brought there to table. Coriander is used as a spice by the Arabs, and is much relished in Egypt and India. It was among the ancients both a condiment and medicine; and from a passage in the Book of Numbers, where the manna is said to be like Coriander seed, it would appear to have been in common use among the Hebrews. It is frequently mentioned also by the Talmudical writers.

The French term the plant *Coriandre;* the Germans call it *Koriander;* the Dutch and Russians *Coriandro;* and the Spaniards *Cilantro.*

1. COW PARSNIP
Heracleum sphondylium
2. SMALL HART-WORT
Tordylium officinale
3. GREAT HART-WORT
T. maximum
4. CORIANDER
Coriandrum sativum
5. HEMLOCK
Conium maculatum

* * * * * * *Fruit short and thick, not prickly nor beaked; somewhat flattened.*

30. Hemlock (*Conium*).

Common Hemlock (*C. maculátum*).—Stem smooth, spotted; leaves thrice pinnate; leaflets lanceolate, pinnatifid, with acute, sometimes cleft, segments. Plant biennial. The tall dark-leaved Hemlock, with its stem of purplish-brown, spotted and striped with purple, is not uncommon on waste places, and about ruins and walls. The hollow stem is two or three feet high, much branched at the upper part, and bearing its umbels of white flowers in June and July. Although the foliage is of a dull green, yet it is remarkably elegant in form; and in some places the plant grows to a great size. When summer is over, its dead stalks rattle in the wind. Country people call them Kecksies; and the Hemlock had the old name of Kex. In an old writer, we find one saying, "I'll make these withered Kexes bear my body." The word Kick or Kex seems now entirely applied to the dried stalks. It is so in Kent; and Clare, who well knew all the common names of flowers in Northamptonshire, describing the summer scene by a river's side, says—

"Some went searching by the wood,
Peeping 'neath the waving thorn,
Where the pouch-lipp'd cuckoo-bud
From its snug retreat was torn;
Where the ragged-robin stood
With its piped stem streak'd with jet;
And the crow-flowers, golden-hued,
Careless plenty easier met.

As the cart-rut rippled down
With the burden of the rain,
Boys came drabbling from the town,
Glad to meet their sports again;
Stopping up their mimic rills
Till they forced their watery bound
Then the Keck-made water-mills
In the current whisk'd around."

Sheep are said to be the only domestic animals which will feed on the Hemlock; nor do many insects choose its foliage for their food, though the song-thrush will make a meal of its seeds. To the skilful physician the plant affords a valuable means of alleviating human suffering; and the extract made from it is a sedative and alterative medicine. Considerable care is requisite in the preparation of the Hemlock for medicinal purposes; and, like all plants used as remedial agents, it is important that it should be gathered at the proper season. Vegetable physiologists have fully ascertained that during the growth of a plant remarkable changes occur in succession, both in its chemical composition and sensible qualities. The meadow saffron (*Cólchicum autumnále*) may be instanced as a plant in which the properties are entirely changed during the progress of its development. The roots of valerian are of little worth unless taken from the ground in the autumnal season; and the foxglove needs, in order that it may retain its properties, to be gathered just as it is coming into flower. The many who seek relief from the medicine afforded by the root of the dandelion would do well to lay in their store during the spring, as it is believed to be stronger in April than in any succeeding month, though at no season of the year are the properties of this root wholly inert. The root of henbane has scarcely any of its powers developed in spring, and if gathered just as the young shoots were emerging from the soil would be almost useless in medicine, though it

affords, when gathered in autumn, a powerful and valuable drug. Dr. Fothergill remarked of the Hemlock: "I know from repeated experiments that the extract which has been prepared from this plant before it had arrived at maturity is much inferior to that which is made when the plant has acquired its full vigour, and is rather on the verge of decline; just when the flowers fade, the rudiments of the seeds (fruit) become observable, and the habit of the plant inclines to yellow, is the proper time for collecting the Hemlock."

The Hemlock has attained a general celebrity, from the belief that the poison drunk by Socrates was made from its juices. The *Koncion* of the ancients was evidently a powerful poison. It was given to him whom the Areopagus had condemned to death. It was swallowed by ancient philosophers who had grown weary of life and its cares and infirmities—by men who knew not the solemn truth that our lives are not our own, and who had never learned from Revelation that no life need be useless, since God may be honoured by patient suffering as much as by active service, by a resigned and thankful old age, as surely as by a fervid and vigorous youth. They came to their last repast as to a banquet, and, crowning themselves with garlands, drank the fatal *Koneion*, and surviving men praised the courage and fortitude which inspired them. Both Linnæus and Lamarck believed that the juices of the Hemlock furnished the poison, though recent writers have assigned other plants as more probable, and the Dropwort Hemlock (the *Œnanthe crocata*) has, as well as several other highly-poisonous herbs, been deemed the poison of the ancients. Professor Burnett remarks on this subject: "Theramenes and Phocion, as well as Socrates, were poisoned by the *Koneion*, and though the effects recorded in the 'Phædo' are not exactly in correspondence with those which we should look for from the common Hemlock, it must be remembered, in the first place, that the difference of a more southern climate will affect the energy of the plant; and secondly, that the historian is not a physician from whom an exact detail of symptoms could be expected. That the modern *Conium* was the *Koneion* of the Greeks is rendered probable by its being very common in Peloponnesus—'most abundant,' says Sibthorpe, 'between Athens and Megara'—and that the *Cicuta virosa*, *Œnanthe phellandrium*, and *Œthusa cynápium*, which have been occasionally referred to, are not found in any part of that country."

The Hemlock is rarely eaten by mistake, but the old botanists recommended to such as had taken it inadvertently a draught of vinegar, "wherewith Tragus doth affirm, that he cured a woman that had eaten the root"—a remedy still approved in cases where persons have eaten the berries of the deadly nightshade. The Hemlock is mentioned in Scripture; thus the prophet Hosea says: "Judgment springeth up as Hemlock in the furrows of the field." As the Hemlock, so common in our fields, is somewhat rare in those of the Holy Land, many commentators believe that some other plant is intended, and a species of nightshade has been supposed to be the Hemlock of Scripture. It is, however, now quite impossible to determine with exactness what was the plant which formed the comparison of the prophet. The most learned of the Rabbins considered it to be the *Conium maculátum*.

31. Bladder-seed (*Physospérmum*).

Cornish Bladder-seed (*P. cornubiénse*).—Root-leaves thrice ternate; leaflets wedge-shaped, cut, or deeply three-lobed, with acute segments; stem-leaves ternate, few, the segments long and narrow. Plant perennial. This rare plant is found in Cornwall and on the borders of the neighbouring county of Devonshire. It has a stem a foot and a half high, and bears its terminal umbel of white flowers in July and August. The coat of the carpel is so loose that the seed may be shaken about in it.

32. Alexanders (*Smýrnium*).

Common Alexanders (*S. olusátrum*).—Stem round; stem-leaves ternate, stalked, serrate. Root biennial. The word *olusatrum*—derived from *olus*, pot-herb, and *atrum*, black, must refer rather to the colour of the ripened fruit than to the foliage or stems of this plant. It is truly remarkable for its bright, glossy, green foliage, and during February the young sprays of leaflets give the hedge-bank a degree of rich verdure afforded at that season by no other plant. The Alexanders grows on waste places, among ruins, but most especially near salt rivers or the sea; often abounding in great quantity on the sea cliffs, as it does on those of Dover, and looking in early spring the brightest thing there, save the clumps of yellow wallflowers. By April the dense rounded clusters of greenish-yellow flowers are very numerous, and the broad membranous bases of the leaf-stalks are swollen out into very conspicuous sheaths. A month later, and the dark aromatic fruits succeed the flowers, and by September the pale withered stalks seem the skeletons of the departed plant. Many persons think the odour of this herb agreeable, and that it resembles that of celery; and although we may not agree with them, yet it is quite certain that the flavour of the Alexanders was liked, and the plant cultivated by our forefathers. Parkinson, in describing the "ordering of the kitchen-garden" in his time (1629), says: "Alisanders are to be sowne of seede, the tops of the rootes with the greene leaves are used in Lent especially"; and the plant was eaten, both boiled and as a salad, before the use of celery had become general. The Italians introduced the culture of the latter vegetable in the seventeenth century; and after that time, not only the Alexanders, but several other herbs then in common culture became less used. It was the young shoots principally which were dressed for the tables of the olden times, and these, quite early in the spring, have an odour not altogether unpleasant, reminding us a little of what Pliny said of the plant—that it had the flavour of myrrh. The modern taste for vegetables may be said to be more cultivated than that of earlier days, when the kitchen-garden was scantily supplied. What Parkinson says of the habits of people in his time, with regard to vegetables, was doubtless true to an even greater extent two or three centuries sooner. In treating of "the manner of ordering of many sortes of herbes and rootes for sallets," he says, "if I should set downe all the sortes of herbes that are usually gathered for sallets, I should not onely speake of garden herbes, but of many herbes which grow wilde in the fields, or else be but weedes in a garden; for the usuall manner with manie is to take the yong buds and leaves of everything, almost, that groweth, as

well in the garden as in the fields, and put them all together, that the taste of the one may amende the relishe of the other." It must be remembered that most of the writers of this period used their word "sallet" in a wider sense than we do our "salad." They included in the description of sallets such plants as the asparagus, which were used only in a cooked condition; and our word "edible" expresses what they meant. They were content with such plants as grew wild, because they knew few others; yet there are but a small number of our native vegetables which afford, even when cultivated, a good and wholesome food; for most of those seen at our tables are, like our potatoes, French beans, peas, lettuces, onions, and radishes, the product of distant soils. The frequent wars of the earlier times prevented men from cultivating the land for anything, save such produce as was necessary to sustain life, though during periods of peace horticulture made some little progress. Doubtless, the description of Harrison is true: "Such herbes and fruits," he says, "as grow yeerlie out of the ground of seed, have been verie plentiful in this land in the time of the first Edward, and after his daies; but in processe of time they grew also to be neglected, so that from Henrie the Fourth, till the latter end of Henrie the Seventh, and beginning of Henrie the Eighth, there was little or no use of them in England, but they remained either unknowne, or supposed as food more meet for hogs and savage beasts to feed upon than mankind; whereas in my time their use is not onely resumed among the poore commons, I mean of melons, pompions, gourds, cucumbers, radishes, skerrits, parsneps, carrets, cabbages, navews, turneps, and all kindes of salad herbes; but also fed upon in daintie dishes, at the tables of delicate merchants, gentlemen, and the nobilitie, who make their provision yearlie for new seeds out of strange countries, from whence they have them aboundantlie." Hume tells us, that when Catharine of Arragon wanted a salad she had to despatch a person to Flanders to procure one. Some kind of salad might, however, have been doubtless procured for the Queen in England, though it was probably so inferior to that to which in her earlier days she had been accustomed, that she might not choose such a dish to appear at her table. It is likely that it would have been mainly composed of some herbs which, as Evelyn says of mushrooms, "Nature affords her vagabonds under every hedge"; but winter-cresses, water-cresses, lamb's-lettuce, Alexanders, samphire, chervil, rampions, and rockets, were even then commonly used as salads; and the goosefoots and oraches were boiled for the tables of those who could not procure the more expensive carrots, parsnips, and skirrets. Doubtless, many a one provided himself like a character in Albion's England:—

> "A sheeve of bread as brown as nut,
> And cheese as white as snowe,
> And wildings of the season's fruite
> He did in scrip bestowe."

The stem of the Alexanders is very stout, furrowed, and often three or four feet in height. The name *Smyrnium* is synonymous with myrrh. The plant is called *Smyrnerkraut* by the Germans; *Maceron* by the French; and *Macerone* by the Italians. The young shoots, when boiled, are said to resemble asparagus in flavour. Pennant mentions that they were boiled and

1. CORNISH BLADDER-SEED
Physospermum Cornubiense.
2. COMMON ALEXANDERS
Smyrnium olusatrum.
3. SHEPHERD'S NEEDLE
Scandix pecten-veneris
4. WILD BEAKED-PARSLEY
Anthriscus sylvestris.
5. GARDEN B. P.
A. cerefolium.
6. COMMON B. P.
A. vulgaris.

eaten by sailors, who, in returning from long voyages, happened to land on the south-west coast of the Isle of Anglesey, where the plant is abundant.

* * * * * * * *Fruit oblong, usually more or less beaked.*

33. SHEPHERD'S-NEEDLE (*Scándix*).

Common Shepherd's-needle (*S. pécten-veneris*).—Beak much longer than the roughish fruit, compressed and fringed with fine stiff hairs; leaves thrice pinnate, segments short and slender. Plant annual. A common and a troublesome weed is this plant, for it is found in almost every corn-field, from May to September, and in some fields seems almost as abundant as the corn itself. Those who are at all observant of wild flowers recognise it at once by the shape of its beaked fruits. The flowers grow in small umbels, and are white; and one would not suppose, from their size, that they could produce the bunches of long, sharp-pointed fruits, which we may often see at the same time on another part of the plant. These fruits are bright green, some of them two or three inches long, and sharp enough to merit the names applied to the plant, of Shepherd's-needle, Pucker-needle, and Venus's-comb. The plant is from three or four inches to a foot high, of uniform bright green colour. It is quite wholesome, and was formerly used as a pot-herb. It is supposed to be the same species as that which the ancient Greeks used as food.

34. BEAKED PARSLEY (*Anthríscus*).

1. **Wild Beaked Parsley** (*A. sylvéstris*).—Stem hairy below, smooth above, swelling a little below each joint; leaves twice pinnate; leaflets pinnatifid; fruit linear, beaked, and smooth. Plant perennial. This is the first of all our umbelliferous plants to lend its white umbels to grace the hedges or field-borders. As early as the end of March, the flowers appear, their clusters drooping at first, but afterwards becoming erect. The stem is three or four feet high, furrowed and branched, and having many leaves, The whole plant is somewhat aromatic, and is eaten in some parts of the kingdom, where it is called Wild Chervil; but being a favourite food of rabbits, it is more frequently gathered for their use than for that of man. It is not unfrequent, and it continues in flower till June, when its oblong fruits with very short beaks may be seen, and the foliage has assumed the dark, somewhat dull green which the plant has when fully grown. It affords good herbage for cattle, and is a favourite food of kine. Though the foliage is wholesome for man, yet the roots are poisonous, and, when they have been eaten as parsnips, have in some cases proved fatal. Professor Burnett remarks, that it is a plant of good omen; for, as it will grow only on rich ground, it is an index of the nature and condition of the soil. The flowers give a good yellow dye, and the leaves afford a bright green tint.

2. **Garden Beaked Parsley**, or **Chervil** (*A. cerefólium*).—Stem hairy above the joints only; umbels lateral and sessile; leaves thrice pinnate; leaflets pinnatifid; fruit large, linear, smooth, with a beak about half its length. Plant annual. The white flowers of this plant appear from May to June. It is not truly wild, though growing in many hedges in this kingdom, and in the neighbourhood of gardens. It was once much esteemed as a pot-

herb, and was also used for salads, and to give flavour to soups. The stem of the Chervil is slender, about a foot or a foot and a half high; and the whole plant is very delicate and graceful, and of pale yellowish-green. It is the *Cerfeuil* of the French; the *Kalberkropf* of the Germans; the *Kervel* of the Dutch; the *Cerfoglio* of the Italians.

3. **Common Beaked Parsley** (*A. vulgáris*).—Umbels stalked, opposite the leaves, stem smooth; leaves thrice pinnate; leaflets pinnatifid; fruit rather large, egg-shaped, and bristly, with a short smooth beak. Plant annual. This wild Chervil has some general resemblance to the Sweet Chervil of the garden, though its stem is taller and thicker, and swollen beneath each joint. It is more often found near towns and villages than elsewhere, and is not uncommon on waste places and by road-sides. The small white flowers expand in May and June. The foliage is considered unwholesome, and is said, by its resemblance to the garden Chervil, to have misled some Dutch sailors who were in England in 1745, and who, having put it into soups, were rendered ill by its use, while to some of their number it proved fatal. Yet Hooker *fils* says it was formerly cultivated as a pot-herb.

35. Chervil (*Chærophýllum*).

1. **Rough Chervil** (*C. temulèntum*).—Stem round, rough, and spotted, swelling below each joint; leaves broadly oblong, pinnatifid, with spine-tipped segments. Plant biennial. The tall stems of this plant, often attaining the height of three feet, render it very conspicuous in hedges and among bushes during June and July. The umbels of the flowers are white, and at first drooping; and the short beaks of the fruit, in this as well as the other species, procured for it its French name of *Cerfeuil à fruits courts*. The Germans call the plant *Ranke Kerbel*, and it is the *Wilde Kervel* of the Dutch. This herb is said to possess very dangerous properties, and, when eaten, to produce giddiness. A species of this Chervil (*C. bulbósum*), which we are accustomed to consider deleterious, but which is sometimes found in our gardens, is, however, used with safety in cookery by the Kalmucks, and the root is eaten in its uncooked state. These people consider the plant as affording a nutritious and excellent food; but it is likely that climate affects its properties.

2. **Tawny-fruited Chervil** (*C. aúreum*).—Stem swelling below the joints, rough; leaves thrice pinnate; leaflets pinnatifid. Plant perennial. Sir William Hooker and Dr. Arnott remark of this plant: "Leaflets peculiarly attenuated, at least on the upper leaves (for the radical ones are more obtuse), a character which distinguishes this from every other British species." The stem is from three to four feet high, angular and spotted, and the umbels of white flowers appear in June. It has an aromatic odour. George Don reported that he had found it in fields near Montrose, and at Corstorphine, Edinburgh, but though these localities have been repeatedly searched, no one has succeeded in substantiating his record.

3. **Broad-leaved Chervil** (*C. aromáticum*).—Leaves twice pinnate; leaflets undivided, serrated, and tapering to a sharp point; root perennial. This plant, which grows to the height of about two or three feet, was

reported by Mr. Don as occurring at the side of the river Lunan, near Guthrie, in Forfarshire, but no other botanist has ever recorded it as growing in this country—a peculiarity of so many of Don's records of rarities.

36. Cicely (*Myrrhis*).

Sweet Cicely (*M. odoráta*).—Leaves somewhat downy beneath, very large, and thrice pinnate, with pinnatifid leaflets; bracts of the partial involucres long and pointed. Plant perennial. This is, perhaps, not a truly wild plant, for it is usually found near houses, where it may have grown in gardens. It was called also Sweet Chervil, and praised because it had, "besides its pleasantness in salads, great physicall virtues." The old herbalists describe it as "so harmless, that you cannot use it amiss;" and told that its roots was held as "effectual as that of Angelica to preserve from infection in the time of the Plague." These roots, boiled and eaten with oil and vinegar, were regarded as tonic. The whole plant is aromatic, and the root very powerfully so. Parkinson remarks: "This herbe is much used both by the French and Dutch, who doe much more delight in herbes of stronger taste than the English doe. It is sowne early, and used but a little while, because it quickly runneth up to seede. Sweete Chervil, or as some call it, Sweete Cis, is so like in the taste unto anise seede, that it much delighteth the taste among other herbes as a sallet. The rootes likewise are not onely cordiall, but also held to be preservative against the Plague, either when greene, dryed, or preserved with sugar."

The odour of the foliage of this plant is certainly very agreeable, though we doubt if the root "made into tarts" would please modern palates. The Germans yet use the seeds very generally in cookery; and in the north of England they were, some years since, used to polish oaken floors and furniture; but oaken floors are gradually disappearing now, and hence the plant is altogether in less request. The large fruits are sometimes nearly an inch long, dark brown, and extremely fragrant.

The Sweet Cicely occurs frequently in pastures at the north of England, and in the Lowlands of Scotland. The stem is two or three feet high, the umbels terminal, and composed of numerous white flowers, which are produced in May and June; the upper surfaces of the leaves are bright and glossy.

* * * * * * * * *Fruit not beaked, clothed with prickles, or with a prickly involucre.*

37. Carrot (*Daúcus*).

1. **Wild Carrot** (*D. caróta*).—Leaves thrice pinnate; leaflets pinnatifid, segments narrow and acute; prickles of fruit slender, mostly distinct and spreading. Plant biennial. Scarcely one of the umbelliferous tribe, common as some of them are, is more frequent than this plant in our hedges, field-borders, and meadows. Its beautifully cut leaves, which in spring are of a most tender green, are very elegant as they unfold in May on the sunny bank, and in autumn are tinted with a golden hue, or reddened into purple or crimson. The umbels of the flowers stand, during June and July, on a stem a foot or more in height. They are white, more or less tinted with

pink, but often having one peculiarity which renders the Wild Carrot's blossom easy of recognition. The central flower of the umbel is of dark purplish-red; and though this often falls early, yet in the first stage of the flower it is in most cases present. The umbel, when in fruit, is usually remarkably concave, and naturally enough suggested one of the familiar country names of the flower, Bird's-nest. A bird's-nest literally we know it cannot be, yet it is often the nightly dormitory of a species of bee, that folds its weary wings, and slumbers in the well-sheltered hollow afforded by the long stalks of the umbel, which, especially in damp weather and during night, coil inwards at the top, and would well exclude the shower or dews. The root is pale yellow, and we have never seen it of the bright orange hue of the garden Carrot, though its odour is so like that of the well-known vegetable, as to leave no doubt of its affinity with it. Tough as this root is in its wild state, it is by most botanists believed to be the origin of the cultivated Carrot; and the latter may be cited as one of the many instances of the singular improvement wrought by care and skill on a wild and apparently useless root. Miller and some other horticulturists, it is true, have planted the Wild Carrot, and after taking much pains to change it into the esculent root, have been unable to do so; but, on the other hand, Professor Buckman says he has had reports of success from friends who have experimented in cultivating it.

The Carrot is supposed to be the *Staphylinos* of Dioscorides, and, like other plants named by the ancients, has been the subject of some learned discussions. The description of the plant given by the Greek physician corresponds in every respect with the Carrot, and he remarks that the root not only grew wild, but was cultivated as an esculent. He describes it, too, as bearing umbels of white flowers, which are in the middle of a purple-red, or almost saffron-red colour. The Greeks call it also *Daucus*, and that earliest writer on cookery, Apicius, terms the plant *Carota*, but many writers think that the *Pastinaca* of the Greeks was the Carrot. It was from the ancient name of *Carota* that the French *Carrotte*, the Italian *Carota*, and the English *Carrot* were derived. The Spaniards call the plant *Zanahoria;* the Dutch *Peen;* and *Möhre* is a common name for the plant in Germany. Beckmann is of opinion that though the Greeks and Romans were certainly acquainted with our Carrot, they used it far less, both in cookery and as fodder for cattle than the moderns do, which would account for its not very frequent mention in their works.

We owe to the Flemings chiefly the use of the Carrot as an addition to our vegetable diet, and in early periods they seem to have been among the best of European horticulturists. When the tyranny of Philip II. drove many of his subjects from their homes, in the time of our Queen Elizabeth, a large number of the Flemish refugees came and resided in England. Some of them finding the soil about Sandwich, in Kent, well suited for the growth of the Carrot, soon cultivated the vegetable, which had been introduced a few years earlier, and the new edible at once recommended itself by its flavour and nutriment, and became a general plant of the kitchen-garden; while many varieties, produced by climate and culture, soon became well known to gardeners. The long and horn Carrots, the two kinds generally

1 ROUGH CHERVIL
Chærophyllum temulentum

2 TAWNY FRUITED C
C. aureum

3 BROAD-LEAVED C
C. aromaticum

4 SWEET CICELY
Myrrhis odorata

5 WILD CARROT
Daucus carota

grown, form several sub-varieties, which differ chiefly in the size and colour of the root. The red, or large field Carrot, is sown mostly in fields for cattle; but the more delicately-flavoured kind, termed the Orange Carrot, though not so productive, is better fitted for the table, and is usually sown in gardens. There are also white, yellow, and purple rooted varieties of the Carrot. Their size differs much according to soil and culture, but Carrots have been known to measure two feet in length, and from twelve to fourteen inches in circumference at the thickest part of the root. Michael Drayton, in the "Poly-olbion," gives us a list of the choicest vegetables in use in his day, and classes the Carrot among them :—

"The colewort, colliflower, and cabbage in their season,
The rouncefall great, beans, and early ripening peason;
The onion, scallion, leek, which housewives highly rate,
Their kinsman garlic, then the poor man's Mithridate;
The savoury parsnip next, and Carrot, pleasing food,
The skirret, which some say, in salads stirs the blood;
The turnep, tasting well to clowns in winter weather,
Thus in one verse we put roots, herbes, and fruits together:
The great moist pompion then, that on the ground doth lie,
A purer of this kind, the sweet musk mellon by,
Which dainty palates now, because they would not want,
Have kindly learnt to set, as yearly to transplant."

Sheep, horses, and cows are very extensively fed upon Carrots; poultry thrive well on these roots, and in some severe winters they have proved very useful food for deer. They contain a greater portion of saccharine matter than can be found in any of the Cerealia, the dried Carrot yielding an eighth part of this substance in combination with starch. This quantity of sugary substance has induced experimentalists to endeavour to make sugar from the root, but without success, as it would not form crystals.

The wild Carrot is in flower in June and July, and the blossoms are succeeded by the rough bristly fruits. The hairs on their surface are so forked and numerous, that the separation of the carpels, in order to get at the seeds, is a work of difficulty, as they adhere so very closely. The leaves are sometimes a foot long, and so graceful that we wonder not that in the time of James I., when the cultivated plant was rare, the courtly dames wore the tasteful plume in halls and palaces. Few leaves, indeed, are more elegant; and Loudon has pointed out that, if in the winter a section be cut from the end or thick part of the carrot, and this be placed in a shallow vessel, containing water, young and delicate leaves are developed, forming a radiated tuft, the graceful and verdant effect of which makes it a pleasing ornament for the mantel-piece in that season, when any semblance of vegetation is a welcome relief to the eye.

The old herbalists applied the Carrot-leaves to wounds, and considered a decoction good for the dropsy, preferring the wild to the garden roots.

2. **Sea-side Carrot** (*D. maritimus*).—Leaves thrice pinnate; leaflets pinnatifid, with rounded segments; root biennial. This plant, which is usually shorter and thicker than the common Carrot, is probably but a variety of it. It differs from that in having broader and more fleshy root-leaves, convex instead of concave umbels, and stouter prickles on its fruits. The flowers are usually white, though in some cases tinged with red; and

in one variety of the plant the petals are fringed, and of greenish-yellow. It blooms in July and August, and the umbels, when in seed, are either convex or flat. It is the *D. gummifer* of Lamarck, and Sir J. D. Hooker regards it as a sub-species of *D. carota*.

38. Bur Parsley (*Caúcalis*).

1. **Small Bur Parsley** (*C. daucoídes*).—Leaves twice pinnate; leaflets pinnatifid, with narrow acute segments; umbels of few rays; general involucre none; partial involucre of about three leaves. Plant annual. This is well named Bur Parsley, for the large oblong fruits, beset with prickles, are truly burs, clinging very readily to any object near them, and so getting their seeds distributed. This is a low plant, the stem often about three or four inches, though sometimes twelve in height. It occurs in chalky corn-fields in the south and east of England; also in the Channel Islands. Its deeply-furrowed stems are hairy at the joints, and it bears, in June, both terminal and lateral umbels of small reddish-white flowers. It is a troublesome weed in cultivated lands, being of no service to man, and unfit for pasture. The French call the Bur Parsley *Caucalide*; the Germans *Haftdolde*; the Dutch *Doornzaad*. It is the *Caucali* of the Italians, the *Caucalide* of the Spaniards, and the *Beterluus* of the Danes.

2. **Great Bur Parsley** (*C. latifólia*).—Leaves pinnate, running down the stem, coarsely serrated; involucres membranous; fruit very rough, with prickles; root annual. This rare plant is a doubtful native of corn-fields on a chalky soil. It is occasionally found between Cambridgeshire and Gloucestershire; also in Somerset, South Wales, and Hertfordshire. Even an unpractised botanist would detect it by its showy pink flowers, and the large oblong prickly fruits which succeed them. The stem is one or two feet high, and very rough; the leaves broad, and little divided. It is in flower in July.

39. Hedge Parsley (*Torílis*).

1. **Upright Hedge Parsley** (*T. anthríscus*).—Leaves twice pinnate; leaflets oblong, deeply serrated; umbels terminal and stalked; partial involucres of many leaves; root annual. This is a tall slender plant, with a stem two or three feet high, solid and rough. The leaves are hairy, and the flowers, which appear in July and August, are small, and either white or of a pinkish hue. The fruit is thickly covered with bristles, which are not hooked. It occurs on hedge-banks and field-borders.

2. **Spreading Hedge Parsley** (*T. infésta*).—Leaves twice pinnate; leaflets cut and serrated; umbels stalked, terminal; general involucre none, or of one leaf, partial of a few awl-shaped leaves; fruit with spreading hooked prickles. Plant annual. The specific name given to this Hedge Parsley might apply to all the plants in the genus, for they are all useless and "troublesome," abounding in fields and waysides. This species is much smaller than the last, its branched stem being from six to eighteen inches in height, and the foliage very rigid. The prickles form a thick mass on the fruits. The plant, which is regarded by Watson as an introduced species, is very common in fields or on waste places south of Yorkshire.

1. SEA SIDE CARROT
   Daucus maritimus
2. SMALL BUR PARSLEY
   Caucalis daucoides
3. GREAT BUR PARSLEY
   C latifolia
4. UPRIGHT HEDGE PARSLEY
   Torilis anthriscus
5. SPREADING H P
   T infesta
6. KNOTTED H P
   T nodosa
7. SEA SIDE PRICKLY SAMPHIRE
   Echinophora spinosa

3. **Knotted Hedge Parsley** (*T. nodósa*).—Stem prostrate; lower leaves twice pinnate, upper ones pinnate; leaflets deeply and uniformly pinnated; umbels nearly sessile, and lateral. Plant annual. This very common species, in hedges and waste places on chalky soil, is distinguished from the others by its prostrate mode of growth, and the small almost globose umbels of reddish-white flowers, which, from May to July, are almost seated upon it. It takes its specific name from the little knots or warts which are often on the inner fruits of the umbel, the outer ones being covered with hooked bristles.

40. PRICKLY SAMPHIRE (*Echinóphora*).

Sea-side Prickly Samphire (*E. spinósa*).—Leaves pinnate; leaflets pinnatifid, with spinous, entire, awl-shaped segments. This singular prickly plant is said to have formerly grown on some parts of the sandy shores of Kent and Lancashire, and it has been recorded from Dorset, though without confirmation. The perennial roots are said to taste like those of the parsnip, with some flavour of salt, and are thought to possess a stimulating quality. It is sometimes called Sea Parsnip.

Order XXXIX. ARALIACEÆ—IVY TRIBE.

Calyx 4—5 toothed, attached to the ovary; petals 4—16, rarely wanting; stamens equalling the petals in number, or twice as many, inserted on the ovary; ovary with two or more cells; styles as many as the cells; fruit fleshy or dry, of several cells, each containing one seed. This is nearly allied to the umbelliferous tribe in the structure of the flower, but differing both in the nature of the fruit and in properties, the order containing no plants that are deleterious. The Ivy and the Adoxa are the only British genera, but the famous *Ginseng* of the Chinese, the *Panax*, whose very name signifies "universal remedy," belongs to this family. This plant is used in almost every medicine taken by the Tartars and Chinese. Osbeck says that he never looked into the apothecaries' shops but they were always selling Ginseng; that both rich and poor used it constantly, infusing half an ounce in their tea and soup every morning, as a remedy for consumption and other diseases. The physicians of China have written volumes on its medicinal powers, stating that it gives immediate relief in extreme fatigue, either of body or mind. Yet European physicians can detect in this root very little of those qualities which would ensure its efficacy as a medicine.

1. MOSCHATEL (*Adóxa*).—Calyx 3-cleft, inserted above the base of the ovary; corolla 4 or 5-cleft, inserted on the ovary; stamens 8 or 10, in pairs; anthers 1-celled; berry 4 or 5-celled. Name in Greek signifying without glory, from its humble appearance. This genus is by some authors included in the *Caprifoliaceæ*.

2. IVY (*Hédera*).—Calyx of 5 teeth, inserted in the ovary; petals 5—10; stamens 5—10; styles 5—10, often combined into one; berry 5-celled and 5-seeded, crowned by the calyx. Name, the Latin name of the plant.

1. Moschatel (*Adóxa*).

Tuberous Moschatel (*A. moschatéllina*).—Leaves from the root on very long foot-stalks, twice ternate, lobed, and cut; stem-leaves 2, small and ternate; root white, fleshy, toothed, creeping and perennial. It is pleasant when spring is just coming on, to stroll away to the hedge-banks and inhale the odour of green leaves, and primroses, and violets, and to look for the Moschatel, which will need looking for among the dried leaves of last year, and the budding leaves of this. Bishop Mant describes the place in which we may find it :—

> "There in the hollow lane, whose sides
> The native rock o'erarching hides,
> While from its moss-green fissures well
> The trickling drops, the Moschatel
> Peep'd meekly from her rocky bed."

It has been said by another poet that—

> "Adoxa loves the green-wood shade;"

and it is usually in some shady nook of wood or hedge-bank that we find the delicate little flower. The foliage is of pale green, and the hue of the flower resembles that of the leaf, but is somewhat more yellow. The blossoms grow in terminal heads of five each, the upper one with four petals and eight stamens; the four flowers surrounding it having five petals and ten stamens each: the stamens are remarkable for being inserted in pairs, and for bearing one-celled anthers.

We used, in early days, to call this "Good-Friday Flower;" for, whether that day fell late or early in spring, this plant would be in blossom, as it is so from the latter end of March till the middle of May. It has several rustic names, as Glory-less, Bulbous Fumitory, Hollow-root, and Musk Crowfoot. The musky odour to which it owes its last name is most perceptible in the evening, a circumstance which, the author has remarked, seems common to all those of our wild flowers which smell of musk, and which is more distinctly observable in some others, as the Musky Heron's-bill, and the Musk Mallow. The French call the flower *Moscatelline*, the Germans *Bisamkräutchen;* the Dutch term it *Muskuskruid*, and the Italians, Spaniards, and Portuguese, *Moscatelina*. It seems common among bushes and trees in most European countries, and is the *Desmerurt* of the Danes, and the *Desmansört* of the Swedes. Sir William Hooker remarks that it is not unfrequent at a great elevation, and even near the tops of the Highland mountains. The following lines were written by Mr. F. A. Paley, for this volume :—

"The First Spring Flowers.

> "When dreary March has pass'd away,
> Give me by sunny bank to stray;
> A bank whose southern aspect gleams
> From morn to eve with spring's first beams,
> Secured from frost and breezes keen,
> By sombre yew's impervious screen,
> Or back'd by woodland's sheltering shade—
> A peaceful and a lonely glade,
> And sloping to a streamlet's side,
> Where heard, not seen, the waters glide.
>
> "Here bounteous Nature loves to fling
> The treasures of the opening spring,
> Where no rude wanderer hastes to tear
> The first form'd flow'ret of the year,
> But every plant that cheers my eyes,
> Unharm'd, yet not unnoticed dies.
> Now, peering from its leafy bed,
> The earliest primrose rear'd its head,
> With violet buds, a fearless few,
> Full many a week ere buds were due.

1 TUBEROUS MOSCHATEL
Adoxa moschatellina

2 COMMON IVY
Hedera helix

3 WILD CORNEL
Cornus sanguinea

4 DWARF CORNEL
C. suecica

5 MISTLETOE
Viscum album

Foremost to deck the sun-warm'd soil,
The arum shows her speckled coil;
Or glossy leaves of blue-bell rose
Impatient from their long repose.
Trim mercury might there be seen
With undevelop'd spikelets green;

Or gaily glittering from afar
The spangled pilewort's burnish'd star;
Now, tempted by the warmer glow,
The tender starwort dares to blow;
Anemone with pensive bell,
And tufts of scented Moschatel;
Veronica, whose eye of blue
Mingles with coltsfoot's golden hue;
And daisy,* with expanded ray,
Fit emblem of the opening day.

"The whitethorn branches overhead,
Their showers of tiny petals shed;
A second snow, when snows are past,
And balmy airs are come at last.

"Through all the vale, above, around,
The skies with merry notes resound;
The wren and robin, roving free,
Sing to the sunshine cheerily,
No longer hid beneath the thorn,
Nor crouching in the lanes forlorn.

"So spend an hour, and you shall prove
That 'tis an easy thing to love,—
Love birds, love flowers, love nature gay,
Love Him who made the April day."

2. Ivy (*Hédera*).

Common Ivy (*H. hélix*).—Leaves egg-shaped, or heart-shaped, with from 3 to 5 angular lobes; umbel simple, erect, downy. Plant perennial. The large masses of green ivy on some of our old walls or lofty trees are among the most picturesque objects of the landscape, and afford continually to the artist and poet some grace of form or colour, or some interesting association.

There are few of us who cannot recall some ancient church or castle, or mouldering arch, or patriarchal tree, covered more or less with its beautiful verdure; and many have seen old trunks of ivy which must have been the growth of centuries. Such is the Ivy which grows around an old ash-tree near the ruins of Fountains Abbey, with its trunk three feet two inches in girth; such is that Ivy which grows against a broken wall of the ancient Richborough Castle, in Kent. Amid these decayed remnants of grandeur the old Ivy is still verdant, and while its aged trunk seems almost imbedded in the masonry, its branches spread far and wide, and with their bright though dark-green canopy shelter the song-birds, which sing as gladly now as they did in the time of that old castle's pride. Of many an ancient abbey we may say, in the words of Robert Nicholls:

"The Ivy clings about the ruin'd walls
Of cell and chapel, and refectory;
An oak-tree's shadow, cloud-like, ever falls
Upon the spot where stood the altar high;
The chambers all are open to the sky;
A goat is feeding where the praying knelt;
The daisy rears its ever open eye
Where the proud Abbot in his grandeur dwelt:
These signs of Time and Change the hardest heart might melt."

It is likely that the Ivy often, by its shelter, and by the strong framework of its branches, supports the ancient edifice, and prevents its entire destruction. To it we doubtless owe all that now remains of those strong walls reared by our forefathers in their fortresses and monastic institutions. Both Mr. Loudon and Dr. Lindley considered that its growth by the side of a well-built house is rather beneficial than otherwise, as it keeps the walls dry. "Ivy," said the latter writer, "may render a house damp by retaining

* Day's eye.

snow in winter, which changes to water, trickles down the walls, and never thoroughly evaporates. But this is of rare occurrence, and may be prevented by beating the ivy after snowstorms, and will only be found an inconvenience when houses are built with mud. No doubt, when walls are not of sound brickwork, or of some other hard materials, the Ivy may introduce its roots into the masonry, and thus do mischief, allowing water to run down its branches, and to follow them into the crevices where they have insinuated themselves; but in all cases of well-built houses we are convinced that Ivy is beneficial, so far as keeping the walls dry." Assuredly the Ivy, with its glossy verdure, never falling into the sere and yellow leaf, is a great addition to the beauty of a building. Those, too, who love the songs of early birds, of the cheerful robin or wren, of merry thrush or whistling blackbird, may rejoice in thinking how that well-clad bough shelters the young nestlings before their wings are fitted for flight, or their voices for song. Thrushes, fieldfares, blackbirds, and wood-pigeons prize the chocolate berries, which are fresh and juicy when haws and hips, blackberries, and fruits of the mountain-ash, have passed away. True it is that the Ivy-bough sometimes shelters the owls, which may scare away our sleep by their strange and mournful tones; true it is that the spider weaves its tracery among it, and sometimes finds its way into the open windows; but, on the other hand, what a store of honey do its flowers supply to bees and butterflies, when all flowers save themselves are dying or dead, and when the insect world will soon perish by cold or hunger, or wait, under other forms, the reviving influence of spring! Late in the year myriads of flies resort to the ivy cluster, and hovering about these blossoms, on brilliant wings, may be seen the Red Admiral butterfly, and the Painted Lady, and many a less showy, but not less beautifully formed and tinted insect, from the sober and busy bee to the golden hornet or the gauzy fly.

But beautiful as the Ivy may be over ancient chapel or modern dwelling, yet its own picturesque grace is more distinctly seen when the plant climbs to the summit of the aged tree, sending out its sprays to garland every bough. Few objects can be more beautiful than an Ivy so situated, especially if some more light and delicate green foliage, belonging to the tree around which it twines, falls down among its dark festoons. When time has stripped the tree of its own leaves, or winter winds have scattered them, then, too, the dark, white-veined leaves are very beautiful, and no lover of scenery can fail to mark this decoration. The leaves vary much in form at different periods of the growth of the plant. When young, they are three or five lobed, strongly veined with white, while a degree of redness often tinges both leaf and stem. As the plant grows older, the shape of the leaf differs, often becoming less lobed; and the green hue is brighter, and more glossy. The plant creeps along, and sends out tufts of roots quite different from the line of pegs by which it clings to a wall or trunk of a tree. The Ivy does not merit the charge of being a parasite. It is not—

> "The Ivy which had hid the princely trunk,
> And suck'd the verdure out on't."

Its pegs are not true roots; they are not like the roots of the mistletoe;

they take no nourishment from the plant on which they hang; it only supports its weakness by clinging to its stronger neighbour.

Many timber trees covered with Ivy attain a large size, yet we cannot say of the plant that it is not injurious to some of the trees which sustain it. There are many cases in which the ivy-band clasps too closely, and both prevents the further growth of the tree and injures it by indenting its bark. The Rev. W. T. Bree communicated, some years since, to a scientific journal some facts relating to the fall of an aged ash, which sufficiently proved the power of the Ivy to injure living trees. This tree had, apparently, at some period been pollarded early, or lopped at about eighteen feet from the ground; and at that time the trunk had for many years been partially hollow, and in a state of decay. It retained its hold in the earth by one large branch only of its roots, aided by the stem of the Ivy, which was nearly a foot in diameter, and which, springing up directly on the opposite side, clasped the trunk, and acted as a prop to keep it in an erect position. "Moreover," says Mr. Bree, "the Ivy towards the very top of the tree formed so large a head of massive and persistent foliage as to occasion the wind to have additional power against it, and cause the vessel, as it were, to carry too great a press of sail. In order to give some idea of the magnificence of this individual specimen of Ivy, the finest perhaps, on the whole, out of many extraordinary fine ones on the premises, I may mention that the men employed to cut up and clear away the windfall calculated that there was at least enough of the evergreen to form a good waggon-load or more, which now, alas! served no better purpose than to feed the sheep, to whom the shrub affords a favourite and wholesome repast." This tree afforded incontestable proof of the injurious effects of the close pressure of the Ivy; for its stems were tightly laced and plaited together, and in some places literally tied in hard knots around the smaller branches of its foster-parent. The effects were to be seen in the deep weals or indentures imprinted on various parts, not merely of the trunk, but of the solid wood of the tree itself; and the foliage had in consequence become very scanty, though portions hung still among the sable mass of Ivy in light and airy festoons. Mr. Bree adds that he has seen such palpable injury produced by Ivy upon timber trees, that even putting aside the *a priori* probability of the case, as well as the testimony of antiquity, he cannot but be greatly surprised that a contrary opinion should ever have been seriously entertained. Though the Ivy takes no nutriment from the tree by its peg-like supports, yet the root at its base must impoverish the soil by imbibing its moisture; and the dense covering, though affording some winter shelter, yet would serve to deprive the tree of some of that light and air which one would suppose must be beneficial to it.

Few have noticed the aspects of nature and vegetation more accurately, few have loved them better, or written of them more pleasantly, than Bishop Mant. His beautiful volumes on the Months commend themselves to all naturalists and botanists by their truth; while the generous and tender sentiment, and the tone of elevated piety which breathes throughout, must make them interesting to a large class of readers. Referring to the subject of our present remarks, Bishop Mant says—

"Its verdure trails the Ivy shoot
Along the ground from root to root;
Or climbing high, with random maze,
O'er elm, and ash, and alder strays;
And round each trunk a network weaves
Fantastic, and each bough with leaves
Of countless shapes entwines, and studs
With pale green blooms and half-form'd buds.
The Ivy, of our native flowers
That now among the latest pours
Its pale green bloom, and ripes its seed
Of black and shining balls to feed,
Impervious to the winter's frost,
The little birds' afflicted host;
The Ivy, fairest plant to seize,
And promptest, on the neighbouring trees,
O'er bole and branch, with leaves that shine
All glossy bright, tenacious twine,
And the else naked woodland scene
Clothe with a raiment fresh and green.
Fair is that Ivy twine to see!
But as ye love the goodly tree,
O rend away the clasping wreath,—
'Twill pay the kind support with death.
Ah, that beneath such semblance fair
Should lurk conceal'd such deadly snare!"

The Ivy was regarded by Pliny as very injurious. He remarks that it injures plants wherever it clings to them, that it breaks sepulchres of stone, and undermines city walls.

The Ivy is truly a climbing plant, sending its shoots upwards so long as they can find a place to which they can attach themselves. When, however, it can find no further support, it then forms tufts of foliage at the summit, and becomes a roundish mass of verdure, putting forth neither rooting fibres nor creeping stems; and its very leaves, changing their usual form of lobed edges, become either broad or narrow, with almost entire margins. Ivy bushes, about four or five feet high, may thus often be seen in the hedge, deriving little or no support from the plants near; and though beautiful for their evergreen hue, yet the plant seems to lose all its graceful form under these circumstances.

The small yellowish-green flowers of the Ivy, with their minute calyx-teeth, may be seen in clusters on the plant from September to November. The leaves, though so well liked by sheep, and fed on by deer, have a bitter flavour. Old physicians recommended a decoction made from them as a sudorific; and an infusion of the berries in vinegar was one of the numerous medicines recommended to be taken against those severe epidemic diseases which have disappeared since cleanliness and ventilation have received more attention in great cities. An old writer says—"The berries are a singular remedy to prevent the plague, and also to free them that have got it, by drinking the berries thereof, made into powder, for two or three days together; the leaves, applied with rose-water and oil of roses to the temple and forehead, easeth the headache, though it be of long continuance." He adds, too, that those who are troubled with the spleen, shall find much ease by the continual drinking out of a cup made of Ivy, so as the drink may stand some time therein before it be drunk. He gives for this one of those reasons which seem to have been more convincing to the men of those generations than to modern judgments. "Cato," he says, "saith that wine put into the Ivy cup will soak through it, by reason of the antipathy that is between them; this antipathy being, as he says, very great between wine and Ivy, for that one who hath a surfeit by drinking wine will find his speediest cure if he drink a draught of the same wine wherein a handful of Ivy leaves has been steeped." The chief worth of this potion, we should imagine, would be that the bitterness of the Ivy might serve to give a disgust for wine, and prevent a speedy return to the wine-cup.

Pliny had said, many centuries earlier, that Ivy berries taken before wine prevented its intoxicating effects; and the bacchanalian fillet of ancient times, as well as the later use of the Ivy bough as the sign of a tavern, were both doubtless founded on some of these notions respecting the effect of the plant. Sir Henry Ellis, in his notes to "Brand's Antiquities," brings several passages from old writers to prove that, a few centuries since, Ivy hung over a door signified that wine was sold within. An allusion to this old custom is pleasantly made by Braithwaite, in his "England's Parnassus," published in 1600—

"I hang no Ivy out to sell my wine."

And in Vaughan's "Golden Grove" the following passage occurs: "Like as an Ivy bush put forth at a vintrie is not the cause of wine, but a signe that wine is to be sold there; so likewise if we see smoke in a chimney, we know that fire is there, albeit the smoke is not the cause of the fire." Coles, in his "Introduction to the Knowledge of Plants," says, "Box and Ivy last long green, and therefore vintners make their garlands thereof; though, perhaps, Ivy is the rather used because of the antipathy between it and wine." The Ivy is still used, because of its evergreen nature, in dressing churches and houses at Christmas; and that it has long been so employed is certain from an old Christmas carol in the British Museum, in which the respective merits of this plant and the holly are compared.

"Ivy hath berys as black as any slo;
There come the owle, and ete hem as she goo:
Holy hath byrdys, a full fayre flok,
The nightingale, the poppyngy, the gayntyle lavyrok."

The ancients generally had so great an esteem for the Ivy, that we wonder not at the disappointment of Alexander the Great, because he could not make the Ivy of Greece grow near Babylon; it was consecrated to Apollo; Bacchus had his brows and spears decked with its leaves; and the people of Thrace wore it garlanded about their armour. The Ivy crown was the meed of the poet, and wreaths of Ivy were presented by the priests of Greece to the newly-married couple—meet emblem as it was of undying love, amid the ravages of time and the blasts of adversity. Modern physicians recognise in the plant none of those properties which it was believed to possess, but consider the berries as emetic. In the south of Europe and north of Africa, an exudation is found on the old trunks of the Ivy, called ivy gum, which is found to be stimulant, and is sometimes substituted for Gum Bassora. It is used as a remedy for toothache, and contains more resin and lignum than gum. Walker says of the resin which exudes from some of our old Ivy stems when wounded, that it renders bait attractive to fish. Thin slices of Ivy wood are used in filtering liquids, and the roots are employed by leather-cutters for sharpening their knives.

The Ivy is confined to temperate regions, and is more or less common in all the countries of Europe. The French call it *Lierre;* the Germans, *Epheu;* and the Dutch have for it the amusingly expressive name of *Klimop.* The Italians call it *Edera;* the Spaniards, *Hiedra.* It is not indigenous to Russia, but is called there *Bljustsch.* Mr. E. P. Thompson, in his "Life in Russia,"

speaking of the love of the people of that nation for flowers, says, "They decorate their houses with them, and nurse them throughout the winter with the greatest solicitude. Ivy is made to serve a pretty and ornamental purpose in their drawing-rooms. They contrive a little frame of light lattice-work on wheels, over which the Ivy is made to twine, forming a pleasant and refreshing-looking arbour, under which the lady of the house ensconces herself in a kind of rural retirement."

But it is in Germany chiefly that the Ivy is used as a most lovely and graceful decoration to dwellings. In England, we consider it enough to let its wreaths hang about our walls; but in Germany, where in its wild state it is far less luxuriant than in our country, it is trained also about the walls of the interior of the house. Anna Mary Howitt, in her "Art-Student in Munich," mentions that, from the palace to the cottage, there is scarcely a room to be found which does not possess its Ivy-tree, and hardly a window to be seen in the street which is not rendered a bower by the festoons of Ivy. It trails around the bars of the window, makes a verdant background to bouquets of flowers placed in vases or flower-pots, and often wreaths its picturesque leaves around a small statue of the Madonna.

"A very pleasant little paper, I have often thought," says this writer, "might be written descriptive of the windows in a German street; and the mode in which the cherished Ivy was trained would play a conspicuous part in it. You may read much of the character of the inmates of the dwelling by the Ivy. Sometimes its leaves are dusty, and its growth is ungraceful, and its sprays untastefully trained; sometimes it grows in a gaudy flower-pot, or swings from the centre of a window in a hideously-shaped *Blumen-lamp*—flower-lamp, as it is called—a kind of swinging-vessel for plants, very much in vogue here; but, as a rule, the Ivy is gracefully, nay, most poetically trained; its *Blumen-lamp*, if it be planted in one, is often of a graceful rustic character, perhaps of red terra-cotta, with delicately moulded foliage of yellowish-white clay meandering over it.

"But it is not alone in windows that you see the Ivy trained. Ivy often forms a green and fresh screen across a room, being planted in boxes, and its sprays trained over rustic framework. Ivy often casts its pleasant shadows over a piano, so that the musician may sit before his instrument as within a little bower. Ivy may be seen adorning the shrine which hangs upon the wall, or dropping its sprays above the lady's work-table.

"The staircase in the house of a great painter here is a complete little bit of fairy-land, thanks to his love of Ivy, which festoons the balustrade of the polished oak stairs, and strews forth its kindly leaves among the rarer beauties of palms and myrtles, which rise grove-like upon the landings! I know an apothecary's shop which is rather like a bit of wild wood, from its growth of Ivy, than a shop of physic. I was told the other day of a studio here equally sylvan; and I know an old cobbler who could not mend his shoes without seeing his Ivy-bush daily before him as he works."

The Ivy does not grow wild either in America or Australia, though common in some parts of Asia. In the Channel Islands it is an exceedingly luxuriant and beautiful plant, the trunks of the trees in Jersey being, almost without exception, covered with its wreaths, which not only add to their

summer beauty, but soften the sterile aspect of the winter landscape, and give to the island a perpetual greenness. Nor is the luxuriance of the plant to be seen on the trees only: wayside walls, and even sea-rocks, are enriched by its verdure; and a mile or two out of the town of St. Heliers there are cliffs against whose bases the waves dash wildly, yet whose slopes and summits are decked with evergreen masses of leaves, and which seem to a casual observer to be some ancient ruins, clad in the mantle which so often hides the time-rent wall.

Sometimes our Ivy wreath twines into the darkness of some chasm in a building, becoming paler tinted as it recedes further from the light of day. We have seen an Ivy branch so situated, in which all the leaves were of so yellow a tint, that the classic reader might have been reminded by it of the *Hedera pallens*—the golden Ivy of Virgil. This plant appears, however, to have been the yellow-berried Ivy, the *Hedera chrysocarpa*, which is probably a variety of our common Ivy, with brighter and more yellow leaves. Mr. Dodwell, in his "Travels in Greece,' mentions having found a fragment of a vase near Athens, which was ornamented with the Ivy plant in relief, gilt. Most classical botanists consider that the Ivy mentioned in the Idylls of Theocritus was the *Hédera hélix*. The Giant or Irish Ivy, *H. canariensis*, is by some writers considered a distinct species, but most regard it but as a variety. It is a native of Madeira, and not of Ireland. An Ivy of Amboyna (*H. umbellífera*) is said to furnish a wood scented like rosemary or lavender. Miss Strickland relates that when last the coffin of Queen Catherine Parr was opened, a wreath of Ivy was found entwining the temples of the royal corpse. A berry which had fallen there and taken root at the time of a previous exhumation had silently, from day to day, woven itself into this green sepulchral coronal, and had wound about the brow where the rich golden hair had once clustered, and where noble thoughts had gathered, and our first Protestant queen lay thus adorned in her lone resting-place.

Order XL. CORNEÆ—CORNEL TRIBE.

Sepals 4, attached to the ovary; petals 4, oblong, broad at the base, inserted into the top of the calyx; stamens 4, inserted with the petals; ovary 2-celled; style thread-like; stigma simple; fruit a berry-like drupe, with a 2-celled nut; seeds solitary. This is a small order, consisting chiefly of trees and shrubs inhabiting the temperate regions of Europe, Asia, Africa, and America. It offers little to our gardens besides some of the Cornels, and the Spotted Laurel (*Aucuba japónica*), which is a common evergreen plant in Japan. The leaves form the chief beauty of this shrub, as the flowers, which are green without, and purplish-red within, are small and inconspicuous.

CORNEL (*Córnus*).—Calyx of 4 teeth; petals 4, superior; stamens 4; nut of the fruit with 2 cells and 2 seeds. Name from *cornu*, a horn, from its hard wood.

CORNEL (*Córnus*).

1. **Wild Cornel**, or **Dogwood** (*C. sanguínea*).—Branches straight; leaves opposite, egg-shaped; flowers in flat cymes, without involucre. Plant

perennial. When wandering along the country lanes, very early in the year, while the trees of the wood and the bushes of the hedge are yet leafless, the twigs and branches of this plant are often very conspicuous. They are almost sure to be plentiful if the soil is of chalk or limestone; and we have sometimes seen the Cornel so abundant in Kent that a wild hedge was, for a mile together, half composed of these boughs. Many of the branches were so red, so like twigs of coral, that its scientific specific name, and its name of Bloody Twig, by which it is still called, and which Pliny termed it, seemed appropriate, though unpleasing. It is also commonly called Dogwood, this name having been given, it is said, because the berries were not fit even for a dog; but it probably had some other origin, since Dog-berry and Hound's-tree were other of its old names, and it was also called Gaten-tree, both by old herbalists and poets. The more probable derivation of the name is from the dags or sharp-pointed skewers used by butchers, and made from the shoots of the Cornel. The name Hound's-tree is said to have reference to a former use of its bark in preparing a wash for mangy dogs. Chaucer calls it Gaten-tree. In France the Cornel is called *Le Cornouiller;* the Germans term it *Kornelbaum;* the Dutch, *Kornœljeboom;* the Italians, *Corniola;* and the Spaniards, *Corniro.* The plant is known in Russia as the *Kuroslejepnik.*

Our wild Cornel is rather a bush than a tree, though by training it may be made to acquire the height of twenty feet. Its foliage is of somewhat dull green, the leaves strongly veined, and, in autumn, more or less tinged with dark purple or red. The white flowers are produced in June and July, and are succeeded by small berries, at first purple, but gradually becoming black. These berries are bitter and astringent, and abound in an oil which in several parts of the Continent is expressed or extracted by boiling, and used both for burning in lamps and for cookery. They yield about a third of their own weight in oil; and M. Granier, in a paper addressed some years since to the Institute of France, stated that the cost of its extraction did not exceed four sous for a pound. The hard wood was once valued for pikes and javelins, though the "good and beautiful Cornus" of Virgil is by most writers thought to be another species, the Cornelian Cherry (*Cornus mascula*). There is some degree of astringency in the bark of our wild Dogwood, but it is not equal to that of several North American species, which yield some of the best tonic medicines used in that country, and scarcely inferior to Peruvian bark. The compact wood of our tree is used for the manufacture of small articles, as arrows, skewers, toothpicks, and lace-bobbins; and the larger wood of some of the species found in other countries is serviceable for more important purposes. The burnt ashes of Cornel wood afford a good charcoal for gunpowder.

Our Cornel is well suited for plantations, thriving well under the dripping of trees; and several of the species are very ornamental to gardens and shrubberies. The White-fruited Dog-wood (*C. alba*) is often to be seen there; and the Cornelian Cherry is a well-known and favourite tree. The twigs of this latter species have not the usual red tint of the Cornels, but are ash-coloured; and in early spring, when the little starry yellow flowers appear on the leafless boughs, the plant is very conspicuous. The fruit is like a small plum, but of red colour. Its flavour is harsh till it has hung some time on the tree, when it is pleasantly acid. It was once much more valued in the

English garden than now, for ladies of olden times not only made the fruit into tarts, but prepared various articles of confectionery with it, and used it at dessert. Tusser, who wrote in Queen Mary's time, calls the fruit Cornet plum; and Lord Bacon termed it Cornelian. Gerarde says: "The male Cornell-tree groweth in most places in Germanie without manuring; it groweth not wilde in Englande, but yet there be sundrie trees of them growing in the gardens of such as love rare and daintie plants, whereof I have a tree or two in my garden." The Turks still use these fruits in sherbet. It is more likely to be this tree than the Red Cornel of which Virgil says in his "Georgics"—

> "The war from stubborn myrtle shafts receives,
> From Cornels jav'lins, and the tougher yew
> Receives the bending figure of a bow."

The berries of the Chilian Cornel are a favourite fruit with the natives of Chili, who make of them a sort of beverage which they term Theca. It is a remarkable fact that the bark of the young twigs of *Cornus florida*, if rubbed upon the teeth, renders them extremely white; and the Indians extract a good scarlet dye from the bark of its fibrous roots. Sir Charles Lyell remarks of this plant: "When I arrived in Virginia, in April, I found the woods everywhere enlivened by the dazzling white flowers of the Dogwood (*C. florida*), the average height of which somewhat exceeds that of our white-thorn; and when, as often happens, there is a background of cedars or pine, the mass of flowers is almost as conspicuous as if a shower of snow had fallen upon the boughs. As we sometimes see a pink variety of the wild thorn in England, so there occurs here, now and then, though rarely, a pink Dogwood. Having never remarked this splendid tree in any English shrubbery or park, I had some fine young plants sent home from a nursery to several English friends, and among others to Sir William Hooker, at Kew, who was not a little diverted at my zeal for the introduction of a tree which had been well established for many years in the British Arboretum. But now that I have since seen the dwarfed and shrubby representatives of this species in our British shrubberies, I am ready to maintain that it is still unknown in our island. No Virginian who was not a botanist could ever recognise it in England as the same plant as the Dogwood of his native land; yet it is capable of enduring frosts as severe and protracted as are ever experienced in the south of England; and the cause of its flowers not attaining their full size in our climate is probably a want of sufficient intensity of light and heat."

2. **Dwarf Cornel** (*C. suécica*).—Leaves egg-shaped, smooth, sessile, and opposite; flowers few; involucre of four leaves. Plant perennial. This is a very different plant from the Cornel of our shrubbery, or that of our hedges, being a herb, and not a shrub or tree. It has subterranean and creeping woody stems, from which arise the flowering stems, about six inches in height. The flowers are produced in July and August, and are dark purple, with yellow stamens. At the base of the umbel are four egg-shaped yellow bracts, tinged with purple. The red berries are considered to have tonic properties. The Highlanders, who believe that they increase the appetite, give to the plant the name of *Lus-a-chrasis*, plant of gluttony. The Dwarf Cornel grows on most Alpine pastures in Scotland and the north of England, from York-

shire to Sutherland. Mr. Loudon says it is very difficult to cultivate in a garden, though planted in a bed of peat in a shady situation.

Sub-class III. COROLLIFLORÆ.

Petals united, bearing the stamens.

Order XLI. LORANTHEÆ—MISTLETOE TRIBE.

Stamens and pistils often on different plants; calyx attached to the ovary, with 2 bracts at the base, sometimes almost wanting; petals 4—8, united at the base, expanding in a valve-like manner; stamens equalling the petals in number, and opposite to them; ovary 1-celled; style 1 or 0; stigma simple; fruit succulent, 1-celled, 1-seeded. This order consists of shrubby plants, which are mostly true parasites, their seeds not germinating on the earth, but only on some other plant.

MISTLETOE (*Viscum*).—Stamens and pistils on separate plants. Barren flower without calyx; petals 4, fleshy, united at the base, each bearing an anther. Fertile flower, calyx a mere rim; petals 4, very small; stigma sessile; berry 1-seeded, crowned by the calyx. Name, the Latin name of the plant.

MISTLETOE (*Viscum*).

Common Mistletoe (*V. álbum*).—Stem branched, repeatedly forked; leaves egg-shaped and lanceolate, blunt; flowers sessile in the forks of the stem. Plant perennial. The Mistletoe-bough, with its pale yellow-green leaves and clear white berries, is not an unfrequent object in the winter woods, or on the trees of gardens or orchards in the southern counties of England. It is found growing on several trees, but is more common on the apple than any other, and is very rarely to be found on the oak. Ray mentions the oak, hazel, and apple as the trees on which this parasite chiefly fixes; but adds, that it may be found also on the pear, hawthorn, common maple, ash, lime, elm, and service-tree. Sir William Hooker and Dr. Arnott mention that it occurs in Gloucestershire on the common maple (*Acer campéstre*), and on lime trees and locust trees (*Robinia pseud-acacia*) in Bedfordshire. It also grows on cherry laurels in gardens. Mr. Dovaston planted the Mistletoe on twenty-three trees; but most of the young plants died early, particularly when planted on the resinous or gum-bearing trees; and he found it to thrive well only on the oak, the apple, and the hawthorn. Some poplar and lime trees, however, in Surrey have been completely destroyed by the quantity of Mistletoe which grew upon them. Mr. Dovaston remarks that he never saw the plant growing well on the oak but once, and that, singular to say, was in Anglesey, in the park of Lord Uxbridge; and it was the more remarkable as hanging almost over a very grand Druidical Cromlech. It is usually in the south of England a bush of about three feet in length, with a smooth and green stem, separating at the joints when dead; the leaves are thick and leathery; the small yellow flowers, which may be seen from March to May, grow in the axils of the upper leaves, and are very thick and succulent. The berries ripen in December, and the yellowish-green plant is then very conspicuous, for no

verdure is in the woods save that of the holly or fir, or some other evergreen tree.

There is little reason to doubt that our Mistletoe was the plant reverenced by the Druids; but as an allied parasitic plant (*Loranthus europœus*) is very commonly found in the south of Europe to grow on the oak, and as our Mistletoe rarely occurs on that tree, some botanists have supposed the Loranthus to be the ancient plant. Those who hold this opinion consider that as this latter plant is not now wild in Britain, it was eradicated entirely when Druidism was suppressed, in order that every vestige of the wonderful superstition might be removed. Professor Burnett, who does not at all agree with this theory, remarks: "The Mistletoe, although seldom found on the oak, is not exclusively a parasite of other trees, and its rarity on the former not improbably led to the preference which the old botanists, as well as the Druids, gave to *Viscus quercus*, the Mistletoe of the oak, over the *Viscus oxyacanthi*, the Mistletoe of the hawthorn, when these plants were held in much repute in medicine. Hence the very circumstance of a search being made for *quercine* Mistletoe, in an age when these islands were covered with forests of oak, is opposed to the idea of the Loranthus being the plant in question. Had it then been indigenous here, the oak would have been its common if not exclusive habitat; and this confirms the belief that the *Viscum* was the branch which the Druids went with such solemnity to cut." To our own minds, the fact that the Mistletoe can be planted, and will thrive, on the oak, renders it much more likely that it should have been the chosen plant, than that in times when forests were so numerous, and the means of access to distant parts of the country so difficult, the Druids could have succeeded in wholly extirpating the Loranthus, even had they wished to do so. The Mistletoe which Mr. Dovaston saw in Anglesey might have grown on the oak without artificial help, as it still does in some parts of England. The Society of Arts many years since offered a premium for the discovery of the Mistletoe on the oak, and had a specimen sent them from an oak in Gloucestershire; and Mr. Jesse mentions having received a piece of Mistletoe from an oak near Godalming, in Surrey. The latter writer remarks that this question of the Mistletoe and Loranthus is not one merely of our times. It excited attention three hundred years ago; for Belon, when travelling in Macedonia, speaks of a Mistletoe which grew on the oaks there, and observed that there was not a single oak-tree on the road between Mount Athos and Tricala on which the plant did not grow, though he says it was different from that which attaches itself to the apple, pear, and other trees. In all probability it was the *Loranthus europœus* that the traveller saw.

The connection of the Mistletoe with the most ancient traditions of Scandinavia and other European countries must ever invest the plant with an interest derived from association. We know, indeed, little of the Druids or their worship, though their vast monuments, their cairns and cromlechs, are scattered over our country, and are remnants of its worship ere its history began.

It is from Pliny, chiefly, that we gather the little which is known of the use made by the Druids of the Mistletoe. This ancient naturalist, in the words of his translator, Dr. Philemon Holland, says: "And forasmuch as we

are entred into a discourse touching miselto, I cannot overpasse one strange thing thereof used in France. The Druidæ (for so they call their Divinours, Wise Men, and the State of their clergie) esteeme nothing in the world more sacred than miselto, and the tree whereon it breedeth, so it be on the oke. Now you must take this by the way. These priests or clergiemen chose of purpose such groves for their Divine service as stood onely upon okes: nay they solemnise no sacrifice, nor perform any sacred ceremonies without branches and leaves thereof, so that they may serve well enugh to be named thereupon Dryidæ in Greek, which signifieth as much as the oke priests. Certes to say, whatsoever they find growing upon that tree over and besides its own fruite, be it Miselto, or any thing else, they esteeme it as a gift sent from Heaven, as a sure signe that the God whom they serve giveth them to understand that he hath chosen that peculiar tree. And no marveile, for in verie deed Miselto is passing geason (scarce), and hard to be found on the oke." This naturalist further describes how the Druids with many devout ceremonies cut down the Mistletoe, as Drayton, many years after, relates in his "Poly-olbion":—

> "The fearless British priests, under the aged oak,
> Taking a milk-white bull, unstained with the yoke,
> And with an axe of gold, from that Jove-sacred tree
> The Mistleto cut down."

Pliny also adds that the Mistletoe in some sort kills trees. He says, too, that the Druids call it All-heal. Full as his own great work is of superstitions connected with plants, yet this old writer closes his account by quaintly moralizing on these practices: "So vain and superstitious," he says, "are many nations in the world, doing oftentimes such foolish things as these."

The Celtic name for the oak was *guid*, *gue* or *guy*, meaning the shrub, *par excellence;* and the name by which the Mistletoe is still called in France, *Le gui*, is evidently but a slight alteration of this. Borlase, in his "Antiquities of Cornwall," says that the Druids gathered the plant with great solemnity near the close of the year, saying, "The new year is at hand—gather the Mistletoe;" and even yet, in some parts of France, the peasant boys go about asking *largesse*, and crying, "*A guy l'an neuf;*" while in the upper part of Germany, the people, about Christmas time, run from door to door in the villages, shouting, "*Guthyl, Guthyl;*" which, he adds, are plainly the remains of the Druidical custom. The name by which the plant is known in most parts of Germany is *Der Mistel*. The people of Holstein call it *Marentakken*, which means literally "the branch of the spectres," from the belief that holding a branch of the Mistletoe in the hand would not only enable a man to see ghosts, but also to speak to them. It is in Italy called *Vischio*, the Spaniards term it *Liga*, the Poles *Jemiel*, and the Russians *Omela*.

The Druids, probably, considered the Mistletoe of the oak efficacious in all sorts of illness. In many parts of Germany it is yet valued for its healing virtues, and supposed to cure wounds; but it is evidently relied upon rather as a charm than from any remedial properties in the plant itself; for the peasants believe, too, that if the huntsman carries it in his hand it will ensure success. The herbalists in Queen Elizabeth's time, however, enumerated various preparations of Mistletoe both as external and internal

remedies; and one of them remarks: "Why that should have most virtues that grows upon oaks, I know not, unless because it is rarest and hardest to come by; and our college's opinion is in this contrary to Scripture, which saith, 'God's tender mercies are over all His works;' and so it is, let the College of Physicians walk as contrary to Him as they please, and that is as contrary as the east to the west. Clusius affirms that which grows upon pear-trees to be as prevalent, and gives order, that it should not touch the ground after it is gathered; and also saith, that being hung about the neck, it remedies witchcraft." The herbalists of those days all praise its efficacy as a remedy for epilepsy, as did the Italian physician Matthiolus. Even as lately as the reign of George I., the plant was extolled for its use in this malady; and Sir George Colbatch, a physician, published, in 1719, a "Dissertation concerning Mistletoe," recommending it as a specific in epilepsy. The berries are slightly astringent, and a preparation of these was recommended in later years; but in earlier times a branch of the Mistletoe was merely hung about the neck. At one time it was actually called *lignum sanctæ crucis*—wood of the holy cross; and the praises bestowed upon it only serve to prove how, in those days of oral tradition, legends gradually adapted themselves to the form of religious belief, till that "more sure word of prophecy" had shed its pure light on the heart and understanding, and driven away superstition.

The Mistletoe is almost the only British truly parasitical plant which bears green leaves, though we have several brown and leafless parasites, like the Broom-rapes. At no time of its existence is this plant nourished by the soil, but derives its sole food from the substance of the tree. Mosses, ferns, and lichens, are often, in popular language, termed parasitic; but they are nourished entirely by the moisture of the atmosphere, or by the soil lying in the crevices of the bark. The insertion of the roots of Mistletoe into the very substance of living vegetables, and the mode of germination of the plant, have occupied considerable attention among botanists, and are sources of great physiological interest. Dutrochet, as well as other men of science, made numerous experiments on the plant, with a view to ascertain its exact mode of growth. Everyone is aware of the fact, that when a seed is planted in the ground, whatever may be its position in the soil, it will send its leaves and branches upwards, and its roots downwards. Dr. Erasmus Darwin ingeniously accounted for this on the principle that the leaf-bud was stimulated by air, and the roots by moisture, and that, therefore, each elongates itself where it is most excited. The experiments made on the Mistletoe confirmed the opinion derived from observations on various plants, that the tendency of the root is always towards the centre of the object on which it grows, and that the young shoots take invariably the opposite direction. Let us plant the seed of the Mistletoe wherever we choose, under a bough, or upon it, or on either side, the root strikes inwards to the centre of the branch, and grows horizontally or laterally, or even shoots upwards, while the stem is produced in the opposite direction.

The Mistletoe is found, when parasitic on the apple, to contain twice as much potash and five times as much phosphoric acid as the tree itself; and when growing on the oak, its bark is astringent. It has, however, lost its

old renown as a medicine, and the magical properties mentioned by Virgil and other ancient poets are remembered, in our country, at least, but as old superstitions. The clear white berries have been made into bird-lime, but recent inventions are superseding that use of the plant, and these fruits will, probably, soon be left to feed the missel-thrush or "storm-cock," as he is called in country places, whose harsh notes from the apple-tree sometimes sound a suitable prelude to the raving of winds and the pelting rains and snows which they are thought to predict. The fruits look very beautiful, however, when mingled with the red berries and glossy leaves of the holly in the winter bouquet. The plant is very properly excluded from the boughs which deck the churches at that season; not, however, for the reason which that orthodox old antiquary, Brand, supposes, because of its heathenish associations, for these are so little remembered now that they need not interfere with modern practices, but because it is so often in rustic places associated with Christmas merriment, that it might awaken remembrances less favourable to thought and devotion. The playful customs beneath the Mistletoe-bough in the country-house are of old antiquity in our land, and are supposed to have originated in the circumstance that the plant was dedicated to the goddess Friga, the Venus of the Saxons. In the feudal ages, the bough was gathered with much ceremony on the evening before Christmas Day, and hung up in hall or kitchen with loud shouts and rejoicing:—

"On Christmas Eve the bells were rung;
On Christmas Eve the mass was sung;
That only night in all the year
Saw the stoled priest the chalice rear;
The damsel donn'd her kirtle sheen;
The hall was dress'd with holly green;
Forth to the woods did merry-men go
To gather in the Mistletoe;
Then open'd wide the baron's hall,
To vassal, tenant, serf, and all."

From Herrick's "Hesperides," we find that this plant, and its companions, retained their places as ornaments in the house till Candlemas Day, at which time the poet says—

"Down with the rosemary and bayes,
Down with the Mistletoe:
Instead of holly now upraise
The greener box for show:
The holly hitherto did sway,
Let box now domineer;
Until the dancing Easter Day,
Or Easter's Eve appear."

The "crooked yew" was to succeed the "youthful box," and the "birch, and many flowers beside," were to yield to the "green rushes and scented bents," till the close of the year, when Mistletoe and holly should resume their reign.

The Mistletoe is pretty general in Europe, and in some other portions of the globe attains a larger size than with us, and is more frequent. Thunberg says that the parasitic Cape Mistletoe, *Viscum capénse*, was disseminated everywhere on the branches of the trees by means of the birds, which ate plenti-

fully of its berries; and Kalm mentions a fibrous Mistletoe (*Viscum filamentósum*), found in abundance in Carolina, which he says the inhabitants make use of as straw in their beds, and also to adorn their houses. They pack brittle goods with it as with straw, and also use it as fodder for cattle. Our common Mistletoe, he says, grows on the tupelo, or sweet gum-tree, and on the oak and lime, so as to render their summits quite green in the winter. Colonel Munday often mentions the Mistletoe of Australia, which, he tells us, hung upon the trees, and, like vampires, seemed to exhaust the life-blood of the plants on which they fixed their fatal affections. He, too, names the gum-tree as a plant on which the parasite grew in great abundance. This writer says: "Early in the morning, when the dew is yet on the leaf, a peculiarly aromatic odour arises from the gum forest. Sometimes I have fancied the scent resembles that of mace, cloves, or pepper, but that of camphor is very general. These balmy and spicy exhalations from the 'medicinal gum,' so different from those of other hot climates where the soil is richer and the vegetation rankly abundant, must be a healthful ingredient of the air we breathe. Depending from some of the larger gum-trees were the most enormous Mistletoes I ever saw. One or two of the clusters of this parasite were so uniform in shape as to look like a huge chandelier of bronze, for that was their colour, hanging plumb down from some slender twig."

Order XLII. CAPRIFOLIACEÆ—WOODBINE TRIBE.

Calyx attached to the ovary, and usually having bracts at its base; corolla regular or irregular, 4—5 cleft; stamens equal in number to the lobes of the corolla, and alternate with them; ovary 3—5 celled; stigmas 1—3; fruit usually fleshy, crowned by the calyx. This order contains many plants of great beauty, differing much from each other. It consists of shrubs or bushes, and herbaceous plants, with opposite leaves. Many very lovely species ornament our gardens, and some, like the Honeysuckle, adorn our native landscape. Excepting some astringency in the bark, however, the plants of this order have no remarkable properties.

1. ELDER (*Sambúcus*).—Calyx 5-cleft; corolla wheel-shaped, 5-lobed; stamens 5; stigmas 3, sessile; berry 3—4 seeded. Name from the Greek *sambuke*, a musical instrument, in making which its wood is said to have been used.

2. GUELDER ROSE (*Vibúrnum*).—Calyx 5-cleft; corolla funnel-shaped, 5-lobed; stamens 5; stigmas 3, sessile; berry 1-seeded. Name, the Latin name of the plant.

3. HONEYSUCKLE (*Lonícera*).—Calyx small, 5-toothed; corolla tubular, irregularly 5-cleft; stamens 5; style thread-shaped; stigma knobbed; berry 1—3 celled, with several seeds. Named in honour of the German botanist, Adam Lonicer.

4. LINNÆA.—Calyx 5-cleft; corolla bell-shaped, 5-cleft, regular; stamens 4, two long and toothed; fruit dry, 3-celled, 1 cell only bearing a perfect seed. Named after Linnæus.

1. Elder (*Sambúcus*).

1. **Common Elder** (*S. nígra*).—Leaves pinnate; leaflets egg-shaped or roundish, and serrated or jagged; stem woody; flowers in cymes. The Elder, which is sometimes a bush, sometimes a small tree, is well known to all dwellers in the country as being the very first bush in the spring hedge to put forth its pale-green, strongly-scented leaves. As early as February we may see it sprouting, even when snows are whirling over the landscape. Clare mentions it in his description of Nature on "the last of March:"—

> "Here 'neath the shelving bank's retreat,
> The horse-blob swells its golden ball,
> Nor fear the lady-smocks to meet
> The snows that round their bosom fall;
> Here, by the arch's ancient wall,
> The antique Elder buds anew;
> Again the bulrush, sprouting tall,
> The water wrinkles, rippling through."

In June, the white clusters, tinged with greenish-yellow, form a conspicuous mass in the hedge. The plant grows well on exposed places, and even near the sea. It is usually seven or eight feet, but is occasionally eighteen or twenty feet in height, the branches having a greyish bark, and the main stem being usually rugged. The younger branches are full of pith, which the schoolboy pushes out, leaving a hollow pipe fitted for his toys; and the pith has been used in electrical experiments. In olden times the cylinders thus formed were used for pipes; hence the plant had in England the old name of Pipe-tree, or Bour-tree, and in Scotland was called Bore-tree. Pliny says: "The shepherds are thoroughly persuaded that the Elder-tree, growing in a by-place out of the way, and where the crowing of cocks from any town cannot be heard, makes more shrill pipes and louder trumpets than any other." The wood of the older branches, which is hard and firm, is used for skewers. The autumnal berries are usually purplish-black, but are sometimes white. They are very mawkish and disagreeable, but the pleasant spiced wine made of them is often drunk around the winter fire in country-houses, and is considered cordial and wholesome, though unfit to be taken in large quantities, as it is very cloying. A syrup, very good for soreness of the throat, may also be made of the berries; and these have been extensively used to adulterate port wine, to which they give a rich colour, though, if not well regulated, they will impart to it a most unpleasing flavour. A good blue dye is also made from these fruits. They are sometimes eaten by poultry which stray beneath the boughs, but they are said to be injurious to them, and especially to turkeys. It seems that in ancient times the appearance of this fruit indicated the season for sowing wheat:—

> "With purple fruit when Elder branches bend,
> And their bright hues the hips and cornels lend,
> Ere yet chill hoar-frost comes, or sleety rain,
> Sow with choice wheat the neatly furrow'd plain."

The unfolded flower-buds of this tree make, when pickled, one of the best substitutes for capers, and though the scent of the blossoms is no pleasing, yet a fragrant water is made from them by distillation, and they

1 DWARF ELDER.
Sambucus ebulus
2 COMMON ELDER.
S. nigra.

Pl. 100.

are used to flavour vinegar. Elder-flower wine is said also to be very good, and to have a flavour like Frontignac. The French seem to like the odour of these flowers, for they place layers of them in store-rooms between their apples, or pack them in baskets with this fruit, to communicate to it an agreeable scent. In this country the chief use made of the blossoms is in the preparation of a useful and common salve, and in country places they are steeped in boiling water, and thus afford a cosmetic, which we have applied often during our childhood with good success, for removing the effects of long exposure to the sun. Few of our native plants have had and still retain more renown for their medicinal virtues than the Elder. Indeed, as Sir J. E. Smith said, this tree is, as it were, a whole magazine of physic to rustic practitioners. Boerhaave is said sometimes to have taken off his hat when he passed the tree, so useful did he deem it in the alleviation of human maladies. The early shoots, boiled as asparagus, were supposed greatly to strengthen the vital powers; the berries and juices of the roots were also prescribed, though with some cautions as to their use, on account of their powerful properties; and the distilled water, besides making the skin "faire and beautifull," was thought to cure headache. Gerarde praised the Elder highly, as did John Evelyn, who recounted its virtues at some length, though he says he cannot commend its scent, which is noxious to the air, nor has he a word to say in favour of its beauty. "If," he says, "the medicinal properties of the leaves, bark, berries, etc., were thoroughly known, I cannot tell what our countryman could ail for which he might not find a remedy from every hedge, either for sickness or wound. The inner bark of Elder applied to any burning takes out the fire immediately; that, or in season the buds, boiled in water-gruel for a breakfast, has effected wonders in a fever; and the decoction is admirable to assuage inflammation. But an extract may be composed of the berries, which is not only greatly efficacious to assist longevity, but is a kind of Catholicon against all infirmities whatever; and of the same berries is made an incomparable spirit, which, drunk by itself or mingled with wine, is not only an excellent drink, but admirable in the dropsy. The ointment made with the young buds and leaves in May, with butter, is most sovereign for aches and shrunk sinews, and the flowers macerated in vinegar are not only of a grateful relish, but good to attenuate and cut raw and gross humours. And less than this could I not (with the leave of the charitable physician) to gratify our poor woodman." It seems never to have occurred to Evelyn, any more than to modern believers in "infallible specifics," that He who gave life and health was not likely to give also to fallen man any certain preventative against that Death which came upon all men when Adam sinned in Eden. As Milton said—

> "Dwelt in herbs and drugs a power
> To avert man's destined hour;
> Learn'd Machaon should have known
> Doubtless to avert his own."

Other good writers of those days held similar opinions to Evelyn of the efficacy of the Elder; yet a line in Lyly's "Epilogue," written in Queen Elizabeth's time, would lead to the inference that it was in some disrepute.

"Laurel for a garland, Elder for a disgrace," says this old writer; and in an elegiac verse of Spenser we find it included with the cypress as an emblem of woe:—

"Now bringen bitter Elder branches sere."

Piers Ploughman had, before this, said in his "Vision"—

"Impe on an Elderne, and if thy apple be swete,
Muchel marvaile me thynketh:"

"Imp" being the old word for graft.

The Elder-tree is often said, especially when in blossom, to exhale impure air. Its scent is certainly unpleasant, yet we doubt its unwholesomeness, having spent many a day beneath its shadow. Pliny says that the leaves when boiled are as good as other potherbs; but we cannot recommend them, though they may prove of much use when laid among mole-hills, as they appear to drive moles from their haunts in garden or park. Country people also gather branches of Elder, and strike with them their flowering shrubs or fruit-trees, and say that no insects will afterwards touch them. For the same purpose they pour an infusion of the leaves over the plant.

There is a cultivated variety of the Elder with variegated leaves in shrubberies, and others with yellow, green, or white berries. Like our common Elder, they grow with singular rapidity, but never arrive at any great size. In the northern part of Scotland the berries seldom ripen, though the tree thrives well in other respects. The name of Elder seems to be derived from the Dutch *Holder*. The Germans call the plant *Hohlunder*, and it is also known in Holland as the *Vlierboom*. The Italians call the tree *Sambuco*; the French, *Sureau*; the Spaniards, *Sauco*; and the Russians, *Busina*.

It was a fancy in former times that Judas hanged himself upon an Elder-tree, and not only Gerarde and other herbalists, but several poets, as Ben Jonson, refer to the idea then prevalent. The well-known purplish-brown fungus which grows in clusters on the bark of this tree, the *Hirneola auricula-judæ*, is shaped very much like an ear, and is to this day called Jew's-ear, but from the incidental mention of the plant in connection with the traitorous disciple, it is probable that the modern name is a corruption of Judas' Ear. Coles, in his work on the "Knowledge of Plants," says of this fungus, "Jewes Eare is called in Latin *Fungus Sambucinus*, and *Auricula Judæ*." He adds, that these mushrooms are said to have grown on the tree ever since the catastrophe referred to. This plant was supposed to have wondrous virtues, and we find an old remedy for a cough in the following lines:—

"For a cough take Judas' Eare
With the paring of a peare:
And drinke this without feare
If you will have remedie."

One of the old names for the Elder was Ellan—still extant in this country—or Ellhorn. Arnkiel says: "Our forefathers also held the Ellhorn holy, wherefore, whosoever need to hew it down (or cut its branches) has first to make request, 'Lady Ellhorn, give me some of thy wood, and I will give thee some of mine when it grows in the forest'—the which with partly bended knees, bare head and folded arms was ordinarily done, as I myself have often

seen and heard in my younger years." An objection to burning Ellan-wood will be found to survive in some parts of this country.

2. **Dwarf Elder**, or **Danewort** (*S. ébulus*).—Stem herbaceous, furrowed; stipules egg-shaped, serrated; leaves pinnate; leaflets serrated; flowers in terminal cymes; root perennial. This plant has, during June and July, when it is in flower, a general resemblance to the Common Elder, and its scent is also similar. It is, however, a herb and not a tree, and its angular stem is not more than two or three feet high. The blossoms are white, tinged on the outside with red, and the anthers are conspicuous by their purple colour. The berries are reddish-black, and have violent emetic properties, though they were prescribed by old physicians, and praised by herbalists for their efficacy in many disorders; a confection made of the fruit is said to be eaten with safety in small quantities, and is sometimes used medicinally. The berries afford a violet juice, which gives a good blue dye. They are strewed in granaries, that their strong odour may drive mice from the corn; and the Silesian farmers commonly place them among their pigs, believing them to cure some maladies to which these animals are liable. No cattle will touch the foliage, but the leaves, dried and powdered, are said to furnish a good material for cleaning metal. The Dwarf Elder is not common, but is found occasionally by waysides and in waste places.

Sir J. E. Smith thus accounted for the name Danewort:—"Our ancestors evinced a just hatred of their brutal enemies the Danes, in supposing the nauseous, fœtid, and noxious plant before us to have sprung from their blood." Sir J. D. Hooker says the plant is supposed to have been introduced by the Danes.

2. Guelder Rose (*Vibúrnum*).

1. **Mealy Guelder Rose**, or **Wayfaring Tree** (*V. lantána*).—Leaves elliptic, heart-shaped at the base, serrated, downy beneath; flowers in terminal cymes; root perennial. Those who are used to parts of England in which chalk and limestone prevail are mostly familiar with this shrub, for it grows frequently in the woods and hedges of such dry soils south of Yorkshire. One of its common names is Cotton Tree, doubtless from the cottony appearance of its young shoots. As early as February these attract the attention of the country rambler, for they stand up above the branches of the leafless thorn and other plants, each surmounted by a small close button-like tuft of grey-green hue, which in time displays the greyish-green strongly-veined leaves and the opening buds of the cluster. As the foliage gradually unfolds its downy covering gives it the appearance of being covered with dust, and by May the large compact clusters of white flowers are fully expanded. Though a sober-looking plant, yet it is bright enough in autumn, when its bunches of glossy fruits are of a most brilliant scarlet, gradually changing as they ripen into purplish-black, and distinguishing themselves from all our other wild-wood berries by growing in flat compact clusters, as well as by having some fruits in the cluster of glowing scarlet, while others are dark as jet. Their flavour is very austere, and they seem to be left untouched by the birds, which probably only feed on them when other berries are not to be had. They are also astringent in property; but in

North America they are, after fermentation, made into a sort of cake by the Indians; and Sir Joseph Hooker, who found the berries of one species abundant on some parts of the Himalaya, says that they are called *Nalum* by the people there, and are eatable and agreeable. In Switzerland they are used in making ink. The bark of the tree is made into bird-lime, but seems to be inferior for this purpose to that of the holly. Evelyn says that the inner bark is so acrid that it is included by some writers among those plants used in raising blisters on the skin, and it is said that a decoction of the leaves will dye the hair black. The young shoots are very tough; so much so that the gatherer of the wild nosegay must use a knife in severing the twig and its flowers. They are in some countries used in making baskets, and for the stems of tobacco pipes. In Kent they are often bound around faggots to keep them together. William Howitt has a pleasing poem on this shrub, and thus addresses it:—

"Wayfaring Tree, what ancient claim
Hast thou to that right pleasant name?
Was it that some faint pilgrim came
Unhopedly to thee,
In the brown desert's weary way,
'Mid toil and thirst's consuming sway,
And there, as 'neath thy shade he lay,
Bless'd the Wayfaring Tree?"

Such a name will indeed awaken the imagination to ponder on its origin, and to wonder to what weary wanderer the wayside tree proved so welcome as to win his regard.

2. **Common Guelder Rose** (*V. ópulus*).—Leaves broad and somewhat heart-shaped, with from three to five pointed and serrated lobes; flowers in large cymes. Plant perennial. This is not an uncommon tree in the English or Scottish woodlands, being more ornamental to them by the varied autumnal tints of its foliage, and by its glistening berries, than even by its summer flowers. The leaves at this season are of red, purple, and green hues, and we know of no native berries so beautiful as those of the Guelder Rose. They hang in drooping clusters, and are smooth, and clear, and bright as rubies. They remain on the boughs long after the foliage has dropped from them leaf by leaf, and they often contrast most vividly with the silken tufts left by the clematis flower which is winding near them. The shrub bears its blossoms in June and July. These are creamy white, and far inferior in beauty and snow-like hue to those of the Guelder Rose, which adorns the shrubbery, as Cowper says—

"Throwing up into the darkest gloom
Of neighbouring cypress, or more sable yew,
Her silver globes, light as the foaming surf
That the wind severs from the broken wave."

This, however, is but a cultivated variety of the woodland shrub. The flowers in their wild form are not densely crowded, but form a loose flat cluster, the inner blossoms being small, bell-shaped, and perfect, and the outer ones consisting of a large flat five-lobed corolla, destitute of stamens and pistils. As in the Umbelliferæ and the Compositæ large numbers of minute flowers are massed together for the sake of rendering them more noticeable to bees and other honey and pollen-seeking insects, so in elder and Guelder

1 MEALY GUELDER ROSE
Viburnum lantana
2 COMMON GUELDER ROSE
V. opulus

Rose a similar plan is adopted. In Guelder Rose the ordinary flowers, that produce honey, stamens, and style, are only one-third of an inch across, but for the sake of advertisement the outer row of flowers are enlarged to three diameters, though to attain this size they have to give up their organs, and become mere banners for the attraction of insect patrons. The perfect flowers secrete honey, but are scarcely fragrant.

The wood of this shrub is used for making skewers, and the berries, though not well flavoured in our country, and if crushed emitting a most disagreeable odour, yet are eaten in Siberia, mingled with honey and flour. Gerarde calls this plant the Rose Elder and Gelder Rose. He says the Dutch call it *Gheldersche Roose*. These names probably all came from Guelderland, where the plant is said to grow freely. The French call it *Boule de neige* and *Viorne*, and it is also commonly called by the latter name in Holland. In Germany it is termed *Schneeball* and *Schlingbaum*, and in Italy and Spain, *Viburno*. The Turks call it *Germeschek*, and the Russians, *Gordowina*. Its name of *Opulus* is supposed to have been originally *populus*. One of our most ornamental and frequent garden evergreens, the laurustinus, is the *Viburnum tinus* of the south of Europe, and its branches mingle with the bay and sweet myrtle in the rich and fragrant hedges of Italy.

3. Honeysuckle (*Lonicera*).

1. **Pale Perfoliate Honeysuckle** (*L. caprifólium*).—Flowers in sessile terminal whorls; leaves smooth, blunt, upper ones joined in pairs by their bases (connate), the rest distinct; root perennial. This is a very rare Honeysuckle, but it is found in some thickets in Oxfordshire and Cambridgeshire, as well as in woods near Edinburgh. It thrives among the trees and bushes, producing in May and June its white or purplish flowers, which are succeeded by bright orange-coloured berries. It is not a native species, but one that has been introduced from the Continent and naturalized in places.

2. **Common Honeysuckle**, or **Woodbine** (*L. periclýmenum*).—Flowers in terminal heads; leaves all distinct, oval, sometimes downy beneath. Perennial. It merits well its old name of Woodbine, or Woodbind. Sometimes, indeed, it binds the tree too closely, as we may see from the indentations which it leaves on the bark, and the ridges which rise up between its coils. At first, while its branches are tender, the Honeysuckle does no harm to the stem or bough which it encircles; but soon that stem or bough increases in size, while the twining plant does not lengthen with proportionate rapidity; till at last the coil becomes closer and tighter, and is as Cowper described it:—

> "As Woodbine weds the plant within her reach,
> Rough elm, or smooth-grain'd ash, or glossy beech,
> In spiral rings ascends the trunk, and lays
> Her golden tassels on the leafy sprays:
> But does a mischief while she lends a grace,
> Slackening its growth by such a strict embrace."

There is scarcely any plant more prized by the lover of the country than the Honeysuckle, which from June to September is covered with its beautiful blossoms of red and yellow, sending sweet odours far and wide, and forming garlands of grace and beauty.

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The Honeysuckle is one of our earliest leafing plants, and we have seen it on the last day of February, with reddish-green leaves an inch long, in hedges where, except on the pale green elder shoots and an occasional evergreen, not another leaf was to be seen. Bishop Mant has alluded to this:—

"And first behold we twine
The runners of the lithe Woodbine,
The first of wilding race that weaves
In nature's loom its downy leaves,
And hangs in green festoons, that creep
O'er thorny brake or craggy steep;
Content to wait for May to spread
Its yellow tubes o'erlaid with red:
Alas! ere May arrives, with grief
'Twill feel, now green, the blacken'd leaf
Thrown prematurely forth to bear
The nipping frost, the blighting air."

At such a season the landscape is looking dreary: the thorns with bronzed stems hang dripping with rain-drops; the black berries of the dark-leaved privet glisten near the red twigs of the cornel, while perchance some bough of the yellow osier seems like a golden rod, or some catkin of willow or hazel gives a little brightness to the scene. Brown leaves with an occasional yellow spray hang on the youngling oaks, and the rich crimson-tinted leaf or stem of the bramble winds among them. But the Honeysuckle leaf has about it the hopes and associations of spring-time. It is the herald of thousands of green leaves which shall quiver on the stem and resound to the pattering rain-drops of April, and be brightened by April rainbows—its spray is to the foliage like the daisy to the flowers and the robin to the birds, the first, and therefore the fairest of its clan.

The sweet odour of the Honeysuckle, and its frequency in the hedge, has endeared the plant to all lovers of Nature; and the poets, whose vocation it is to express the thoughts and feelings which have filled the hearts of the thousands who could never give them utterance—the poets, from Chaucer downwards, have all praised the Honeysuckle. Chaucer tells how those that—

"Wore chapelets on hir hede
Of fresh Wodebind, be such as never were
To love untrue, in word, ne thought, ne dede;
But ay stedfast: ne for plesance ne fere,
Tho' that they shoulde hir hertes all to tere,
Would never flit, but ever were stedfast
Till that hir lives thei asunder brust."

The poet drew his image of constant affection doubtless from the clinging nature of the Woodbine, and its enduring hold on the tree. Spenser, Michael Drayton and Shakspere all call it Woodbine, Honeysuckle, or Caprifoly; but Milton evidently intends this flower by the "twisted Eglantine," a name, however, which all others of the older poets, Chaucer included, had given to the Sweet Briar.

Besides the blooms which the Honeysuckle bears in summer, it flowers again, though far less luxuriantly, in October. The dull red berries are clammy, and would not tempt any one by their flavour to pluck them, for they are sweetish and insipid, though the berries of the Blue Honeysuckle (*L. cærúlea*) are a very favourite food with the Kamtschatdales. Dr. Griesbach says: "The pine-forests of Kamtschatka have an underwood of roses and honeysuckles. Among the edible fruits the Arctic bramble has the most agreeable taste; the elongated dark blue berries of a Lonicera come next;

1. PALE PERFOLIATE HONEYSUCKLE
Lonicera caprifolium.
2. COMMON HONEYSUCKLE
L. periclymenum.
3. UPRIGHT FLY HONEYSUCKLE
L. xylosteum.
4. TWO-FLOWERED LINNÆA
Linnæa borealis.

their taste is not inferior to the finest cherries; they are prepared with milk, or Sarannah, and form a favourite article of food." The fruits of several species are, however, said to be emetic.

The foliage of our Woodbine is very agreeable to goats, hence our plant is sometimes called Goat's-leaf, or Caprifoly; and the same allusion is to be traced in the specific name of the botanist, and the French name of the plant, which is the *Chèvre-feuille*, as well as in some others of those by which it is known on the continent of Europe. It is the *Caprifoglio*, or the *Madre-salva*, of the Italian and Spaniard; the *Geisblatt*, or the *Baumlilie*, of the Germans; and the *Kamperfolie* of the Dutch. The genus now called *Lonicera* is a section of the older genus *Caprifolium*.

The Honeysuckle in its windings follows the sun from east to west. The plant bears pruning well, for, as Professor Martyn observes, those plants which in a state of nature cannot ascend without the assistance of others, are often liable to lose large branches; they have therefore a proportionate vigour of growth adapted to restore accidental injuries. The leaves are very liable to the attacks of aphides, and the sphinx hawk-moths with their long tongues extract the honey from the flowers. The flowers have, in fact, become specially adapted for the visits of butterflies and moths, whose tongues alone are sufficiently long to reach the honey, and who alone are able to fertilize the ovules. But certain humble-bees, evidently annoyed by the long narrow tube, have devised a plan for getting over the difficulty of access to the honey —they bite through the tube near the base, and so reach the honey without conferring any benefit upon the flower.

Fragrant essences and waters are made by perfumers of the flowers of the Honeysuckle; and the plant is often treated as Wordsworth describes:—

> "Brought from the woods the Honeysuckle twines,
> Around the porch, and seems in that trim place
> A plant no longer wild."

3. **Upright Fly Honeysuckle** (*L. xylósteum*).—Stalks 2-flowered, downy; berries distinct, except at the base; leaves egg-shaped, entire, downy. Plant perennial. This shrub, which is another naturalized alien, occurs in woods in some parts of England, as in Hertfordshire and Northumberland. It has in May and June small twin flowers of a pale yellow colour and without fragrance, and its fruits are small and crimson.

4. LINNÆA (*Linnæa*).

1. **Two-flowered Linnæa** (*L. borealis*).—Stem trailing; leaves broadly egg-shaped, their margins with rounded notches, leathery and evergreen; flower-stalks long, erect, and 2-flowered; calyx, flower-stalks, bracts, and involucre covered with glandular hairs; root perennial. This elegant plant is found in woods in East and Mid-Scotland, especially among fir-trees, in the counties of Perth, Forfar, Inverness, and Aberdeen; and in English fir-woods as far South as Yorkshire. The delicate thread-like stems are branched, and the pink or flesh-coloured bells droop gracefully, expanding in June and July. Gronovius gave this plant its name at the request of Linnæus, who considered that its lowly, depressed condition, and the fact of its having been long

unnoticed, rendered it a meet emblem of his own early life. In all subsequent time the flower has had and will ever possess an interest to the botanist, for Carl Linné was a great reformer of Natural History, and the father of several of the modern physical sciences. Dr. E. D. Clarke found the Linnæa very common in almost all the large Northern fir-forests, but he remarks that it might be easily overlooked, because it only grows in any abundance in the thickest parts of the woods, where its delicate twin-blossoms are almost hidden among the moss, through which its slender stems run along to the length of nine or ten feet. The flowers are in West Bothnia gathered for making some remedy for cold and rheumatism; and the people of Tronyen make an infusion of the plant, which they use for various disorders. Linnæus considered that it possessed medicinal properties; the odour of the blossom is much like that of our meadow-sweet (*Spiræa ulmária*), and Dr. Clarke found it so powerful during night-time as to enable him to discover the plant at a considerable distance. He remarks, "There may be other varieties of it than those which we noticed, but the representations given of it by Linnæus in his 'Flora Suecica' are not correct. No person from these representations would be able to comprehend why it received the appellation of *Nummularia*, before Gronovius, in honour of Linnæus, changed its generic name, its leaves being all there represented as ovate and serrated, whereas, some of them, sometimes all, are perfectly orbicular, like little pieces of money." The plant is now, in all European countries where it grows, known by the name of Linnæa; but the Norwegians call it also *Norisle*, *Norétte*, and *Nariosle* grass; the Danes commonly term it *Marislegräes;* and the Swedish peasants call it *Vindgräs*. The latter people, however, prize it for its association with their great botanist. Mr. E. P. Thompson remarks: "To have produced one man whose reputation has become the property of the Universe is to this day their boast and pride; and as if to prove what the force of the example of one great mind can effect, the love of Botany among the Swedes is a ruling passion. The *Linnæa borealis*, a little creeping plant of delicious fragrance, growing wild in the woods, and named from Linnæus, and with which they have crowned his bust, is perfectly venerated. In one of my rambles in the country some schoolboys, who were following the same path, came running to me, stranger as I was, exclaiming, 'See, sir, I have found some of the *Linnæa borealis*.'"

Nor is this interesting plant confined to Europe. Sir Charles Lyell, in one of his excursions to see the falls of the river Amsonosue, was shown by a botanist who accompanied him several places in which the Linnæa grew, and it was at that time in fruit. This traveller had seen it in July, 1842, in flower in Nova Scotia, but was not prepared to find it extending so much farther southward, having first known it as a characteristic of Norway and of great Alpine heights in Europe. But he was still more surprised when he was assured by his friend that it descends even into the wooded plains of New Hampshire, under favour of a long winter and summer fogs, near the sea. He adds, "What is most singular, between Manchester and Cape Anne, in lat. 42° 30′ N., it inhabits the same swamp with *Magnolia glauca*. The Arctic Linnæa trailing along the ground, and protected by a magnolia, affords a common example of two plants of genera characteristic of very

different latitudes, each on the extreme limits of the Northern and Southern range."

The Swedish Government granted the *Linnæa borealis* to Linnæus as a crest for his coat of arms; and letters are yet extant sealed with the seal which the botanist had caused to be engraved with this flower.

Order XLIII. RUBIACEÆ—MADDER TRIBE.

Calyx 4 or 6-lobed, or wanting; corolla 4—6-lobed, wheel-shaped, bell-shaped, or tubular, regular, the number of its divisions equal to those of the calyx; stamens 3 to 5, alternate with the lobes of the corolla; ovary 2-celled; styles 2; stigmas 2; fruit a pericarp, with 2 cells and 2 seeds. This is a very important and a very large order, but all the European species are comprised in the group called *Stellatæ*, or Rubiaceæ proper. These are natives of the northern hemisphere, and many of them are weeds—the most valuable plant is the Madder, the roots of the *Rubia tinctoria* being one of the most useful dyes yet known. Several species possess in a greater or less degree roots which might be used in dyeing. Some species, like the Squinancy-wort, are somewhat astringent; but it is to the plants of warm climates, contained in the order in its more extended form, that we owe so many valuable articles of food and medicine. Coffee, Peruvian Bark, Quinine, and many other important products, are derived from species of Rubiaceæ.

1. MADDER (*Rúbia*).—Corolla wheel-shaped or bell-shaped, 5-lobed; stamens 4; fruit, a 2-lobed berry. Name from the Latin *ruber*, red, from the red dye afforded by some species.

2. BED-STRAW (*Gálium*).—Corolla wheel-shaped, usually 4-lobed; stamens 4; fruit dry, 2-lobed, 2-seeded, not crowned by the calyx. Name from the Greek *gala*, milk, some species being used for curdling milk.

3. WOODRUFF (*Aspérula*).—Corolla funnel-shaped, 4-lobed; stamens 4; fruit dry, 2-lobed, 2-seeded, not crowned with the calyx. Name from *asper*, rough, in allusion to the hispid character of some species.

4. FIELD MADDER (*Sherárdia*).—Corolla funnel-shaped, 4-lobed; stamens 4; fruit dry, 2-lobed, 2-seeded, crowned by the calyx. Named from James Sherard, an English botanist.

1. MADDER (*Rúbia*).

Wild Madder (*R. peregrina*).—Leaves 4—6 in a whorl, oval, or lanceolate, and glossy, the margins and midrib prickly; corolla wheel-shaped, 5-cleft; root perennial. This plant grows locally throughout the extreme southern counties of England, in stony and sandy thickets, especially near the sea; also in Wales and Herefordshire, East and South Ireland, and the Channel Islands. It has long straggling stems, with whorls of stiff evergreen leaves, very glossy on their upper surface, and bending under at the margins. The stems are very rough, and the plant in an early stage much resembles the common goose-grass. The small flowers appear from June to August; they grow in panicles, and are of a yellowish or greenish white hue. On one or two spots of the sea-cliffs at the east of Dover, the plant forms large

patches, which in winter still wear their leaves and fruits, the foliage looking as if cut out of thin sheets of copper, and the black berries being about the size of currants. In the neighbourhood of Bristol it used to be so abundant as to take the place of the common goose-grass among the bushes. Mr. Peter Inchbald thought that it attains its northern limit at Llandudno in North Wales. The larger stems of the plant are round, but when young they are square. The root contains some of that colouring matter which renders the true Madder so valuable both to dyers and colour-makers.

2. Bedstraw (*Gálium*).

Root perennial; flowers yellow.

1. **Yellow Bedstraw** (*G. vérum*).—Leaves 8 to 12 in a whorl, linear; flowers in dense panicles. During the summer, from June to September, many of our dry sunny banks and green sloping pastures, especially near the sea, are gay with the golden blooms of this plant, contrasting with the rich dark green tint of the slender leaves. Although the flowers are small, yet, growing in large and dense clusters, they are very conspicuous, and they have a sweet honey-like scent. As this species is by far the most attractive of the genus, it probably gained for it the name of Lady's Bedstraw, which was doubtless, in the old time, Our Lady's Bedstraw. The French call the plant *Gaillet*, and *Petit Muguet;* the Germans term it *Labkraut;* the Dutch, *Walstro;* the Italians, *Gaglio;* and the Spaniards, *Cuaja leche.* It was formerly used in Cheshire for coagulating the milk for making cheese, and hence had the old name of Cheese-rennet. Matthiolus says that it produces a very agreeable flavour, and makes the cheese eat sweeter; but the author of these pages considers that the milk in which it has been placed retains, in consequence, a very disagreeable taste. A slight and subtle acid exists in the plant, and vinegar has been made from its juices. Dr. Lister, writing to the great naturalist, John Ray, says that he obtained vinegar from the Yellow Bedstraw; adding, "It is a rare experiment, and is owing, for aught I know, to Borrichius: you will see a further account of it in the 'Danish Transactions.'" The whole plant boiled in alum affords a good yellow dye, and the roots yield a red colour, equal or superior to that of the true madder. They have long been used for dyeing in the Scottish islands, and were, some years since, recommended for general culture by the Committee of the Council of Trade; but, though the colour is rich, the roots are too small to render the plant a profitable crop. As in the case of the true Madder, and of several allied species, the bones of animals are turned red by feeding on the plant. This colouring takes place sooner in young than in fully grown animals, and is deepest in those whose bones are hardest and thickest. This property of the madder and its allies is the more remarkable, because it is not shared by other plants which, like the woad and saffron, are used in dyeing. It was first noted by John Belchier, an English surgeon, who, having dined with a cotton-printer, observed that the bones of some pork on the table were of a bright red hue. On expressing his surprise, his host explained to him that this was in consequence of the swine having been fed on bran and water in which cloth had been previously boiled, and which was coloured by the

1. WILD MADDER.
   Rubia peregrina.
2. YELLOW BEDSTRAW.
   Galium verum.
3. CROSS-WORT B.
   C. cruciatum.
4. SMOOTH HEATH B.
   G. saxatile.
5. LEAST MOUNTAIN B.
   G. pusillum.
6. ROUGH MARSH B.
   G. uliginosum.

Rúbia tinctória. Mr. Belchier, after making various experiments on the subject, communicated the results to the Royal Society. Singular preparations were afterwards made, by which animals were fed alternately on madder and on their customary food: by these means the constant deposition of osseous matter, and its constant removal, were clearly marked by the white or red colours, while the entire withdrawal of the plant for some days caused the total disappearance of the red hue in the bones of the animals. The French formerly considered the Yellow Bedstraw of much medicinal efficacy in hysteria and epilepsy. The plant is common throughout Europe, enlivening everywhere the fields of Siberia, as it does ours, with its bright blossoms.

It is thought that the name of Bedstraw is derived from the old English word, to straw or strow, and that these plants were used for strewing over floors. Thus we find in churchwardens' accounts of former days various items for "strawenge of yerbes;" but a more direct origin is found in the fact, that straw, as well as herbs, was formerly used for beds, and that some imaginative monk or nun thought that this plant, from its beauty and sweetness, should form "Our Lady's Bedstraw." The old historian Fitz-Stephen, who was secretary to Thomas à Becket, tells of one who held a manor in Aylesbury, on condition of finding litter for the king's bed; namely, grass or herb in summer, and straw in winter, three times in the year, on the king's visit to Aylesbury. In as late a period as the reign of Henry VIII., the beds were filled with straw, even the king's bed being of that material.

2. **Cross-wort Bedstraw** (*G. cruciátum*).—Leaves 4 in a whorl, egg-shaped, hairy; flowers in small axillary cymes; fruit-stalks bending downwards. This species is often called Mugweed, and is a common plant of our hedge-banks and thickets, its hairy or downy stem being about two feet in height. Its dull yellow blossoms appear in May and June, and form little clusters of about eight flowers, which are seated in the axils of the leaves, the upper blossoms having pistils only, the lower ones only stamens. It is well distinguished by having its leaves arranged four together in the form of a cross. It was formerly considered, when bruised, a good remedy for wounds.

* * *Flowers white; root perennial.*

3. **Smooth Heath Bedstraw** (*G. saxátile*).—Leaves about 6 in a whorl, inversely egg-shaped, pointed; stem much branched, smooth, prostrate below. This species, as its name imports, is to be found on open sunny places, as heaths, hill-sides, and mountains, and it is a common plant. Its stem is much branched, and its numerous and dense panicles of flowers, often from June to August, whiten the grassy spots by their profusion. The greater number of the white-flowered species have their blossoms in few and scattered panicles, so as to make no great show; but this species, with its milk-white clusters, is, like the Yellow Bedstraw, rendered ornamental by their numbers. The edges of the leaves are sometimes fringed by a few prickles, pointing forwards. It is usually a low-growing plant, but in moist places is sometimes a foot high. It turns black in drying.

4. **Least Mountain Bedstraw** (*G. pusillum*).—Leaves about 8 in a whorl, narrow, lanceolate, and hair-pointed, lower ones somewhat hairy; panicles terminal, few-flowered; fruit slightly granulated. This species is very similar to the last, and chiefly distinguished from it by its more narrow, stiff pointed leaves and its more erect habit. It is, however, a rare plant, occurring on dry soils in several of the more western parts of England, Scotland, and Ireland. It is not found in Wales, neither in the west of Scotland nor in the east of England. It flowers in July and August. Also known as *G. sylvestre.*

5. **Rough Marsh Bedstraw** (*G. uliginósum*).—Leaves 6—8 in a whorl, narrow, tapering at both ends, bristle-pointed, their edges as well as the angles of the stem rough with prickles, which point backwards. This species is very frequent by the sides of rivers and on wet meadows. It has much similarity to the following kind, and both plants are often found growing together. It is chiefly distinguished from it by its narrow, sharply-pointed leaves. Its slender and brittle stem is rarely more than a foot high, and its panicles of few flowers appear in July and August. It does not turn black in drying. It is to this or a nearly allied species that Charlotte Smith refers, when describing the course of some water nymph down the quiet river.

> "O'er her light skiff, of woven bulrush made,
> The water-lily lends a polish'd shade;
> White Galium there, in pale and silver hue,
> And epilobium on the bank that grew,
> Form her soft couch; and as the sylphs divide
> With pliant arms the still increasing tide,
> A thousand leaves along the stream unfold;
> Amidst its waving swords, in flaming gold,
> The iris towers; and here the arrowhead,
> And water-crowfoot, more profusely spread,
> Spangle the quiet current; higher there,
> As conscious of her claims, in beauty rare,
> Her rosy umbels rears the flow'ring rush;
> While with reflected charms the waters blush."

6. **White Water Bedstraw** (*G. palústre*). — Leaves from 4 to 6 in a whorl, oblong, blunt, tapering at the base; stem weak, straggling, branched, more or less rough. This common plant flowers in July and August, bearing its blossoms in loose panicles. It is usually larger than the foregoing species, with which alone it could be confounded, but it varies greatly in different soils and circumstances. In one variety the stem and leaves are almost smooth; and in a second, the nerves at the back and margins of the leaves, and the angles of the stem, are most distinctly beset with prickles, which chiefly bend downwards. The latter form is the *G. witheringii* of some botanists.

7. **Upright Bedstraw** (*G. eréctum*).—Leaves from 6 to 8 in a whorl, lanceolate, and tipped with a spine, the margins having prickles which point forwards; stem weak, segments of the corolla somewhat pointed. This is a rare species, flowering in June, and found in some hedges of England and Scotland. It has in some cases narrower leaves, when it is described by some botanists as *G. diffusum.* In other conditions it has been termed *G. aristatum*, and *G. elatum.* It appears to be really a sub-species of *G. mollugo.*

1. WHITE WATER BED STRAW
Galium palustre
2. UPRIGHT B
G erectum
3. GREAT HEDGE B
G mollugo
4. CROSS LEAVED B
G boreale
5. WALL B
G parisiense
6. WARTY FRUITED B
G saccharatum
7. SMOOTH FRUITED B
G spurium

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8. **Great Hedge Bedstraw** (*G. mollúgo*).—Leaves 8 in a whorl, oblong, tapering at both ends, having a bristly point and roughish margins. This species, though not frequent in Scotland, is among the common flowers of England, bearing its blossoms in loose spreading panicles, and having long, soft slender stems three or four feet in length. It presents some resemblance to the goose-grass; its prickles, however, point forwards, while those of that plant point backwards. A variety has been found by Dr. Bromfield in the Isle of Wight, with greenish flowers. The plant was, some years since, highly eulogized by M. Jourdain, the Director of the Hospital at Tain in Dauphiny, as a valuable remedy for epilepsy, and marvellous cases have been related of its efficacy, though very little reliance is placed by other medical men on its powers. The roots afford a good red dye, and colour the bones of birds.

9. **Cross-leaved Bedstraw** (*G. boreále*).—Leaves 4 in a whorl, lanceolate, 3-nerved, smooth; stems erect. This species, which is not uncommon on moist rocky places, is easily distinguished by its four leaves placed crosswise, and its fruit rough with hooked bristles. It has straggling stems about eighteen inches long, with many leafy branches, and it bears in June and July its compact terminal panicles of flowers. This plant is, by the North American Indians, termed *Sawayan*, and the roots are used to dye the porcupine quills with which they embroider the boxes, baskets, and other ornamented articles made of birch-bark, so often brought to this country. The roots, after being carefully washed, are boiled gently, and a quantity of the juice of the mooseberry, cranberry, or strawberry, is added. The quills are placed in the liquor before it becomes cold, and in most cases quickly acquire a rich scarlet tint, though occasionally the dye fails, and only a dingy brown colour is produced. This is probably the consequence of too much acid having been mingled with the dye. The Crees use several plants in tinting the quills, taking indiscriminately either this or an allied species for the scarlet hue, and giving the black colour with elder bark, the yellow with a juice obtained from the Dutch myrtle, and various other tints by means of lichens which abound on the barren rocks. Both the quills and the skins which the Indians prepare for their dresses are also dyed yellow with a colour derived from a species of hellebore, growing commonly in the woods throughout Canada, and called by the French *Tissavoyaune jaune*. The Cross-leaved Bedstraw must not be sought south of a line drawn from Brecon to York. North of that and in Ireland it may be looked for creeping among moist elevated rocks.

* * * *Roots annual; flowers white or greenish.*

10. **Wall Bedstraw** (*G. parisiénse*).—Leaves about 6 in a whorl, lanceolate, bristle-pointed, prickles on the margins pointing forwards; flower-stalks axillary; stem slender, rough, with prickles bending backwards; fruit in one variety bristly, in another smooth. This is a plant inhabiting dry sandy soils and walls, and flowering in June and July. It is found, though rarely, in Kent, and other parts of the east and south-east of England. It is also known as *G. anglicum*.

11. **Warty-fruited Bedstraw** (*G. saccharátum*).—Leaves 6 in a whorl,

lanceolate, the prickles on their margins pointing forward; flower-stalks 3-flowered; fruit large, rough, with raised tubercles. The stems are trailing, and the flowers, which expand from June to August, are small and of a pale yellow colour. It cannot be considered a native, for its addition to the list of British plants rests on the unsupported testimony of G. Don.

12. **Smooth-fruited Corn Bedstraw** (*G. spúrium*).—Leaves from 6 to 8 in a whorl, narrowly lanceolate, with prickles on the margin, and mid-rib pointing backwards; flower-stalks axillary, with from 3 to 9 flowers; fruit smooth or rough, on straight, forked stalks. This rare species is found only in cultivated fields, and has probably been introduced with flax-seed. It has, in its rough-fruited variety, been found in Essex and Cambridgeshire, and closely resembles the goose-grass (*G. aparíne*), but is distinguished by its more numerous green flowers, its floral leaves being solitary or in pairs, and its much smaller fruit.

13. **Rough-fruited Corn Bedstraw** (*G. tricórne*).—Leaves from 6 to 8 in a whorl, narrow, lanceolate, with marginal prickles turning backwards; stem with prickles turning backwards; flower-stalks axillary, 3-flowered; flowers small; fruit large and covered with small granulations. This species flowers from June to August, on dry chalky fields, from Cumberland southward.

14. **Goose-grass** or **Cleavers** (*G. aparíne*).—Leaves from 6 to 8 in a whorl, narrowly lanceolate, their margins as well as the angles of the stem rough, with prickles pointing backwards; flower-stalks axillary, about 3-flowered; fruit covered with short hooked bristles. Those who know anything about wild flowers will hardly need a description of this common plant; for there is scarcely a hedge-bank on which its stems and starry leaves may not be seen straggling among the grass, or climbing by the help of the bushes, and it often intrudes itself into the garden. Leaves, stems, and globular fruits are all bristly, and the latter often cling to the clothing of the country rambler, and so get distributed far and wide, as they do more naturally by sticking to the fur or feathers of the birds and mammals that haunt the hedgerow. Several of our popular names indicate this habit of the plant; thus it is called Cleavers, Scratchweed, and Catchweed. The Greeks termed it *Philanthrópon*, fancifully attributing its clinging habit to a love of mankind, though, of course, the cause is purely mechanical. Dioscorides tells us that it was used in his time as a kind of filter for straining milk, and Linnæus says it is commonly so used in Sweden. In our own country places it is occasionally thus employed, when a sieve is not at hand, and answers the purpose exceedingly well, by the roughness of its leaves and stalks. In former days, when country dwellings were less plentifully supplied with household conveniences, this and other rustic contrivances were probably in much more frequent use than in modern times, and the direction of the poet was then more applicable than now:

> "For first an osier colender provide
> Of twigs thick wrought: such toiling peasants twine,
> When through streight passages they strein their wine.'

This plant is said to have its name of Goose-grass from the fondness of that bird for its herbage. Its expressed juice has long been justly praised

1. ROUGH FRUITED CORN BEDSTRAW. *Galium tricorne.*
2. GOOSE GRASS. *G. aparine.*
3. BLUE FIELD MADDER. *Sherardia arvensis.*
4. SWEET WOODRUFF. *Asperula odorata.*
5. SMALL W. *A. cynanchica.*
6. FIELD W. *A. arvensis.*

Pl. 105.

as a purifier of the blood. The plant is cut in small pieces, also, and boiled in broth as a spring drink, or it is pounded in a mortar, and the juice taken while fresh. Its outward application has, even in modern days, been advised by eminent surgeons, and its use in this form was once very general; and, besides being prescribed as a remedy for those "bitten by serpents," it was deemed a certain cure for wounds. An old writer tells us that it was "familiarly taken," in his day, "as a broth, to keep them lank and lean that were apt to grow fat;" though what particular advantage either to health or beauty was gained by being lank and lean our good herbalist does not specify. The interior of the seeds is somewhat horny, and they form, when roasted, a good substitute for coffee. From some slightly stimulating powers which the beverage made from them is thought to possess, it has been suggested that they contain the principle of caffeine, which renders the Arabian berry so refreshing in its influences. Our Goose-grass is found throughout Europe and North America, as well as in the north of Asia. A tuberous-rooted species of Galium (*G. tuberósum*) is cultivated in China as a dietetic vegetable, and the tubers, either ground or cooked whole, are described as forming a wholesome and agreeable dish.

3. Woodruff (*Aspérula*).

1. **Sweet Woodruff** (*A. odoráta*).—Leaves from 6 to 8 in a whorl, lanceolate; fruit bristly; root perennial. Plentiful as this fragrant plant is in many of our woods, yet in others it is altogether unknown. We have seen it in Kent and Surrey, covering large extents of wooded land, its bright green stems surrounded by coronals of richly verdant leaves, and surmounted in May and June by its beautiful little clusters of blossoms. The small flowers, white, or slightly tinged with pink, seem firm and compact as if cut out of wax. The leaves are deliciously fragrant with the odour of newly-mown hay, but this is scarcely perceptible while the plant is growing. When gathered, the warmth of the hand soon brings forth the aroma, and the dried plant will retain its odour for many years. The name of Woodruff, or, as it was formerly spelt, Wooderoofe, or Woodrowe, is a corruption of Woodrowel, and was given, according to Turner, because "its leaves represent certain rowelles of spoorres." One of the old modes of spelling the word is still commemorated in the country rhyme yet handed down from generation to generation by cottage children:—

"Double U double O double D E,
R O double U double F E."

Gerarde observes of this plant, "Woodrooffe hath manie square stalkes full of joynts, and at everie knot or joynt, seven or eight long narrow leaves, set round about like a starre, or the rowelle of a spurre. The flowers growe at the top of the stemmes, of a white colour, and a very sweete smell, as is the rest of the herbe, which being made up into garlandes and bundles, hanging up in houses in the heat of summer, doth very well attemper the aire, coole and make freshe the place, to the delight and comfort of such as are therein. Woodrooffe is named of divers *Aspergula odorata*, of others *Cordialis* and *Stellaria*; in English, Wooderooffe, Woodrowe, and Woodrowell.

It is reported to be put into wine to make a man merrie, and to be good for the heart and liver." We know, too, from churchwardens' accounts of the reign of Edward IV., that "Rose garlandis and Woodrowe garlandis" were hung in churches.

The Woodruff generally grows very closely around the roots of trees, and on a soil so completely formed of vegetable mould, that, as some writer has remarked, it might almost be thought a parasite. The foliage imparts a very pleasant flavour to wine, but in our days and country it is seldom mingled with it, except in villages. It is often, however, laid in drawers among linen or clothes, to which it not only imparts a sweet odour, but is thought to serve as a preservative from moth. Ladies often use it for the contents of ornamental scent-bags. In Germany the plant is much employed in flavouring liqueurs. The Germans also gather it in May for the purpose of making a delicious beverage, which they call May-drink. A gentleman, known to the author, was travelling with a friend in Germany, when, stopping at a hotel, this May-drink was brought as a refreshment to the travellers They inquired of what the pleasant beverage was composed, and were informed that sugar, Rhine wine, and Sweet Woodruff, were the ingredients. Next morning, at breakfast, the gentleman missed his companion, and was, some hours after, amused to see him returning to the hotel, accompanied by a peasant laden with a basket of the roots of the Sweet Woodruff, which he had patriotically determined to transplant to the woods of his native land, that Englishmen might henceforth enjoy the delicious May-drink. It was not without some disappointment that he heard from his friend that his early morning labour was wasted, and that he had only need to walk into some woods within a mile of his own home, to find the plant as plentiful as in those of Germany.

The Sweet Woodruff is eaten by cattle and horses. It contains an acid principle, with much fixed alkaline salt; and its odour, like the similar one of the Meadow-grass (*Anthoxánthum odorátum*), is owing to the benzoic acid which it contains. Its power of "making the heart merrie," which our fathers ascribed to it, must, if not altogether imaginary, be owing to the slightly exhilarating principle of theine, to which we owe the refreshing powers of tea, that, as Cowper says, "cheers, but not inebriates," and a smaller portion of which is possessed by the foliage of the Woodruff.

2. **Small Woodruff, or Squinancy-wort** (*A. cynánchica*).—Leaves very slender, 4 in a whorl, uppermost whorls very unequal; fruit granular and rough; root perennial. The general appearance of this plant differs very much from that of the fragrant species. Its leaves are smaller and narrower, and its dense clusters of white flowers, with pink exteriors, are much handsomer. It grows on warm sunny banks, on open downs, or chalk cliffs, and is a common plant on limestone soils; but it is far more local than *A. odorata*, and it is not found north of Westmoreland and Yorkshire. It occurs also in the south and west of Ireland. The stems rarely exceed four inches in height, and the flowers expand in June and July. The odour of this herb is truly disagreeable, but its large patches, when in flower, are very ornamental to the short pasture grasses among which it grows. Its specific name, taken from the Greek, and signifying to choke, as well as its English

name of Quinsey-wort or Quinancy-wort, refers to its ancient uses in disorders of the throat.

3. **Field Woodruff** (*A. arvénsis*).—Leaves from 6 to 10 in a whorl, very slender, lanceolate, and blunt; flowers in a terminal cluster, surrounded by long bracts, fringed with delicate hairs; stem erect, square. This plant was probably never truly wild in this country, though Gerarde says that in his time it grew in "many places of Essex and divers other parts, in sandie ground." It still occurs occasionally in corn-fields, but no doubt introduced with the farmer's seeds. The flowers are bright blue, expanding in June; the fruit large and smooth.

4. SHERARDIA, OR FIELD MADDER (*Sherárdia*).

Blue Sherardia (*S. arvénsis*).—Leaves about 6 in a whorl, lanceolate, acute, their margins rough; flowers in small umbels, seated amid the terminal leaves; stems branching and spreading; root annual. Many persons, while wandering in the country, pass by this small plant; but the lover of wild flowers regards with interest its pretty little cluster of pale lilac blossoms; and the botanist looks with favour on a plant destined to commemorate one of our greatest botanical collectors. The valuable Herbarium of James Sherard is still preserved at Oxford; while the noble garden of Sherard, at Eltham, in Kent, has been immortalized by having given rise to the "Hortus Elthamensis" of Dillenius. The plant is so small, that one would fain have commemorated a good botanist by a finer flower; but that is unimportant, seeing that the work of Dillenius is an enduring monument to his fame. The plant abounds in the ridges of corn-fields, and on dry banks, especially where the soil is of gravel, flowering from April to October.

Order XLIV. VALERIANEÆ—VALERIAN TRIBE.

Calyx superior, finally becoming a border or pappus to the fruit; corolla tubular, 3—6-lobed, sometimes irregular and spurred at the base; stamens from 1 to 5, inserted into the tube of the corolla; ovary with from 1 to 3 cells; fruit dry, crowned with the calyx, not bursting, 1-seeded, two of the cells being empty. This order consists of herbaceous plants with opposite leaves, without stipules, having, in most cases, a powerful odour, and a bitter and tonic principle. Many plants of other countries contained in this order possess important properties. The true Spikenard of the ancients is a plant of this family. They are mostly natives of temperate climates, often growing on mountains. Though the species are rare in Africa and North America, they abound in South America, the north of India, and Europe.

1. SPUR VALERIAN (*Centránthus*).—Corolla 5-cleft, spurred at the base; stamen 1; fruit crowned with a feathery pappus. Named from *kentron*, a spur, and *anthos*, a flower.

2. VALERIAN (*Valeriána*).—Corolla 5-cleft, bulged at the base; stamens 3; fruit crowned with a pappus. Name from the Latin *valere*, to heal, from its medicinal properties.

3. CORN-SALAD (*Fédia*).—Corolla 5-cleft, bulged at the base; stamens 2—3; fruit crowned with the calyx. Name of uncertain origin.

1. SPUR VALERIAN (*Centránthus*).

Red Spur Valerian (*C. rúber*).—Leaves egg-shaped, pointed; spur much shorter than the tube of the corolla; root perennial. This plant, with its large handsome clusters, varying from delicate pink to rich deep red, is a very common garden flower. It is not a truly British species, but is naturalized in many chalk-pits and limestone quarries; and it often grows on old walls, where it is the outcast of the flower-bed, or sometimes on castle-steep or church-tower. The gardener calls it by various familiar names, as Pretty Betty, but of old it was called Setewall. From several sources, we know it was a plant of some renown. The old writers seem to include the great wild Valerian in the same name, but as the red species grows on walls, it originally, doubtless, belonged to this.

The stem of this species is from one to two feet high, and its flowers appear from April to September, a variety with white blossoms sometimes occurring. The practical effect of the spur is to increase the length of the long flower tube and render the honey accessible only to insects with long tongues. The leaves are smooth, and covered with a sea-green powder. The French term the plant *Valeriana*, the Germans call it *Baldrian*, and the Russians *Balderian*. Its native country is the south of Europe, and in Sicily the leaves are commonly eaten as a salad; the seeds of some species were formerly used in embalming the dead.

It is interesting to note the simple method by which cross-fertilization is assured, provided that insect visits are made to the flowers. The solitary stamen first stands erectly at the mouth of the flower and sheds its pollen; afterwards the style rises to the same position and matures its stigmas, so that a bee that has visited an older flower and got dusted with pollen is likely to bring the same part of its body in contact with the stigma and so fertilize it.

2. VALERIAN (*Valeriána*).

1. **Small Marsh Valerian** (*V. diöica*).—Stamens and pistils on different plants; root-leaves egg-shaped, stalked; stem-leaves pinnatifid, with a large terminal lobe, serrated; root perennial. This small species is common in moist meadows, its erect and unbranched stem being about a foot high, and surmounted, in May, by its corymb of pale pink flowers, of which the stamen-bearing corollas are larger than the others.

There are really four forms of flowers to be found on as many plants: 1, the largest of all, contains stamens but no pistil; 2, the next largest, contains stamens and a rudimentary pistil; 3, smaller, contains a fully developed pistil, but the anthers are only rudimentary and produce no pollen; 4, the smallest of all, contains a pistil but no anthers. By this arrangement cross-fertilization is certain, through the agency of insects that seek the honey with which the flowers are provided. The presence of the rudimentary organs points to the probability that the flowers formerly contained both stamens and pistil, as in *V. officinalis*.

2. **Great Wild Valerian** (*V. officinális*).—Leaves all pinnatifid; leaflets lanceolate, nearly uniform; root with short subterranean shoots. A form of

1. RED SPUR VALERIAN
Centranthus ruber
2. SMALL MARSH VALERIAN
Valeriana dioica
3. GREAT WILD VALERIAN
V. officinalis
4. HEART LEAVED VALERIAN
V. pyrenaica

Pl. 106.

this plant, having from six to ten pairs of leaflets, either entire or toothed at the margins, and with spreading leaf-stalks, is described by some writers as *V. mikani;* while another form of the plant, having the lower and middle leaf-stalks erect and closely pressed, and its toothed and serrated leaves of four or five pairs of leaflets, has been termed *V. sambucifolia.* The former is more generally met, the latter being very local. It is pleasant, during June, to wander by the river bank, watching the gauzy-winged insects as they dance in the sunbeams, and the swallows which skim over the pool, or the scarcely less graceful water-wagtails hovering above the water. Few spots of our landscape are at this season more attractive to the lover of Nature than such a one as Chaucer seems to have loved so well:—

"A river in a greene mede,
There as sweetnesse evirmore inough is,
With flowre white and blewe, yellowe and rede."

And few of the flowers gathering there among grass and sedge are more conspicuous than the tall Valerian, which grows on the river's brink, or just within the water. It is commonly three feet high, and sometimes, when the river runs over a chalky soil, it is four, or even five feet in height. In such cases, as the eye follows the windings of the waters, we may see the plant giving its hue to the margin by its delicately-tinted clusters of pale pink, becoming almost white when fully developed, and mingling, perhaps, with other specimens from which the flowers have passed away, leaving behind the clusters of feathery down so soon to be widely scattered by autumnal winds. To many of us, the powerful scent of the Valerian is unpleasing; but this odour, still stronger in the roots, is much prized in the East, some of the most valued perfumes being made from the roots of various species. The celebrated Celtic Spikenard (*V. celtica*) is much used in Eastern perfumery, and in baths; the *V. jatamansi* is believed to be the Spikenard of the Scripture writers and the Nardus of the ancients; and it is still used in the unguents of the East, as it was when Mary poured it on the Saviour from the costly box of alabaster. Sir William Jones, by his knowledge of the Sanscrit and Hindoo names of the plant, identified it with the ancient Spikenard; but he had no access to the Himalayan Mountains, where it grew. Dr. Royle, however, who was, several years later, in charge of the East India Company's garden at Seharumpore, not far from the foot of the Himalayas, made further inquiries into the subject. He then learnt that Jatamansi, better known in India by the name of Balchur, was yearly brought down in considerable quantities, as an article of commerce, to the plains of India; and having procured fresh roots, he planted them in the Botanic garden. He then found the plant to be a Valerian. It was called *Nardostachys jatamansi* by M. de Candolle, and there seems no reason to doubt that this was the *nard* or *nerd* of the ancients. The Arabs compare the root to the tail of an ermine, which it much resembles; this appearance being produced by the circumstance that the woody fibres of the leaf and its footstalk are not decomposed in the cold and comparatively dry climate where they are produced, but remain, and thus form a protection for the plant from the severity of the weather. Dr. Joseph Hooker, when in the Himalayan Mountains, received this plant with the eggs and rice brought to him as a gift. He says

that it smells strongly of patchouli. Gerarde says of our wild Valerian, "It hath been had, and is to this day among poore people of our northern parts, in such veneration, that no brothe, pottage, or physicall meates are worth anything if Setewall were not at an end; wherefore some woman poet or other hath made these verses:—

"'They that would have their heale
Must put Setewall in their keale.'"

But before the woman poet wrote this, Chaucer had alluded to "Canell and Setewal of pris," and had elsewhere used this comparison:—

"But he himselfe was swete as any roote
Of licoris, or any Setewall."

Country people of our days commonly use the leaves as an application to wounds; hence it is often called All-heal. Several old writers, as Michael Drayton, refer to its healing virtues. Its odour is peculiarly agreeable to cats; they chew the roots and leaves eagerly, and appear to be intoxicated by the effects. Hence it is also known as Cat's Valerian.

3. **Heart-leaved Valerian** (*V. pyrenáica*).—Leaves heart-shaped, toothed, and serrated, stalked; upper ones with 1 or 2 pairs of small lanceolate leaflets; root perennial. This plant is apparently naturalized in some of the Scottish woods. It is a native of the Pyrenees, and, being cultivated in gardens, has established itself in some of our woods and plantations.

3. Corn-salad (*Fédia*).

1. **Common Corn-salad** (*F. olitória*).—Leaves long and narrow, wider towards the end, and somewhat toothed near the base; flowers in leafy heads; capsule inflated, crowned by the three calyx teeth; root annual. This plant, common in corn-fields and on dry banks, is not very attractive. Its flowers are very small, white, and are more or less tinted with blue or lilac, appearing in April. The stems are from four to eight inches high, repeatedly two-forked, and the leaves are of a pale delicate green. The French call the plant *Mâche, Salade de prêtre*, and *Salade de chanoine*. It was formerly called, in England, White Pot-herb, and Lamb's Lettuce. Its young leaves taste like lettuce, and are still sometimes cultivated for salad; but the far larger size of the garden lettuce renders it a more desirable plant for the kitchen-garden, though the wild herb yields an earlier salad, for the leaves are fit to be gathered by March. There is no doubt, from its old French names, that it was one of the vegetables reared in the kitchen-garden of the monastery. Gerarde says of it, "In winter, and the first months of spring it serves for a salad-herbe, and is with pleasure eaten with vinegar, salt, and oile, as other sallades be, among which it is none of the worst."

2. **Carinated Corn-salad** (*F. carinata*).—Fruit oblong, boat-shaped, crowned with a straight tooth; the two empty cells thin, and curving inwards at the edge; flowers in dense cymes; root-leaves tapering at the base; stem-leaves oblong; root annual. This very rare plant is found on some hedge-banks of England, bearing its pale-blue flowers from April to June. It is not regarded as a true native, and may be only a variety of *F. olitoria*.

1. COMMON CORN SALAD.
Fedia olitoria.

2. CARINATED C. S.
F. carinata.

3. SHARP FRUITED C. S.
F. auricula.

4. SMOOTH NARROW-FRUITED C. S.
F. dentata.

3. **Sharp-fruited Corn-salad** (*F. auricula*). — Fruit sub-globose, crowned with the single entire or three-toothed limb of the calyx; empty cells rounded on the back, larger than the fertile one, inflated; flowers in lax cymes. Plant annual. This species is very similar to the last, differing from it chiefly in its broader and more inflated fruit and large empty cells. It occurs occasionally on cultivated lands, flowering from June to August.

4. **Smooth Narrow-fruited Corn-salad** (*F. dentáta*).—Capsule egg-shaped, somewhat flat, 2-ribbed in front, and sharply pointed, crowned with the small, unequally-toothed calyx; root annual. This plant has a great number of varieties, which, differing as to the form, or in the smoothness or hairiness of the capsule, have been described by some botanists as so many species. It occurs in corn-fields and on hedge-banks, but is not a common plant, except in the west of England. Its flowers are of a pale flesh-colour, usually in corymbs, with a solitary blossom seated in the forks of the stem. It is a less tender plant than the Corn-salads usually are, and its flowers appear in June and July.

5. **Hairy-headed Corn-salad** (*F. eriocarpa*).—This species, which was formerly regarded as a variety of *F. dentata*, much resembles it, but the cymes are more crowded, the fruit generally clothed with short, spreading curved hairs. The chief difference, however, is found in the large, slightly oblique calyx, which is bell-shaped. It flowers in June and July, and has been recorded from Cornwall, Dorset, and Worcester.

Order XLV. DIPSACEÆ—TEASEL TRIBE.

Calyx superior, surrounded by several more or less rigid involucral bracts; corolla tubular, with 4—5 unequal lobes; stamens 4, the anthers not united; style 1; stigma not cleft; fruit dry, 1-seeded, often crowned by the pappus-like calyx; flowers in heads. The plants of this order are all herbaceous or under-shrubs. They are chiefly natives of the south of Europe, Barbary, the Levant, and the Cape of Good Hope, rarely growing on mountains. Their properties are not remarkable, and the Fuller's Teasel is the only plant of any great importance, though some species of Scabious possess a small degree of astringency.

1. TEASEL (*Dipsacus*).—Heads with numerous general bracts at the base; outer calyx (involucel) forming a thickened margin to the fruit; inner cup-shaped, entire; receptacle with rigid awns; fruit with four sides. Name from the Greek *dipsao*, to thirst, because the leaves hold water.

2. SCABIOUS (*Scabiósa*).—Heads with numerous general bracts at the base; outer calyx membranaceous, and plaited, inner of 5 bristles; receptacle scaly; fruit nearly cylindrical. Name from the Latin *scabies*, the leprosy, because some of the species were used as a remedy for that disease.

3. KNAUTIA (*Knaútia*).—Heads with numerous general bracts at the base; outer calyx minute, with 4 small teeth, inner cup-shaped; receptacle hairy; fruit 4-sided. Name in honour of Christopher Knaut, a German botanist.

1. Teasel (*Dipsacus*).

1. **Wild Teasel** (*D. sylvéstris*).—Leaves opposite, united at the base, undivided; scales of the receptacle straight at the extremity. Plant biennial. In many of our woods, during the winter months, there is scarcely an object more conspicuous than the chaffy bristly heads of this Wild Teasel. Hundreds of them, standing up on stout prickly stems nearly six feet high, may be seen, looking so like the brooms used in cleansing ceilings, that we wonder not to hear the cottager call the plant Wood-broom; while another country name, Shepherd's Staff, is not inappropriate. The large leaves, united at their base around the stem, form a hollow, which serves to hold the rain or dews, and sometimes we have found as much as half a pint of clear liquid deposited in this leafy cup, in which many a luckless insect lay drowning. To some lover of classic lore, this circumstance suggested the names by which it is still often called, Venus's Bath, or Venus's Cup. The thirsty traveller, during July, might be glad to avail himself of the refreshment of this liquid but for the presence of these insect carcases, and in early times it was collected to serve as a cosmetic, and as a cure for inflamed eyes. It may be well to point out that this arrangement of the leaves, whereby the stem is surrounded by water, is designed to protect the flowers from ants and other creeping honey-robbers, who would otherwise climb the stem and spoil the flowers without rendering the plant any service. It has recently been found that the plant renders this water slightly digestive, and that certain cells of the leaf send out hair-like processes into it through which the digested insect-matter is absorbed to nourish the plant.

The larva of a small insect which infests the head of the Teasel is said, by Lemery, to be of much use in the cure of intermittent fevers. This insect was long considered to "charm" away agues; and Gerarde tells us of charms used for the cure of this malady, which may make us thankful for the improvement of medical science. "It is needlesse," he says, "here to alledge those things that are added touching the little wormes found in the head of the Teazel, and which are to be hanged about the neck, for they are nothing else but most vaine and trifling toies, as myselfe have proved a little before the impression hereof, having a most grievous ague, and of long continuance. Notwithstanding physick charmes, these wormes hanged about my necke, spiders put into a walnut-shell, and divers such foolish toies that I was constrained to take by fantasticke people's procurement; notwithstanding, I say, my helpe came from God Himselfe, for these medicines, and all other such things, did me no good at all." Even in our own days, some of these practices have been used; for Kirby and Spence relate that nine of these larvæ, inclosed in a goose-quill or reed, are commonly worn for agues.

The flowers of the Teasel are to be seen in July, growing on the large conical heads. They are of purplish lilac colour, not expanding all at once, but in rings.

2. **Fuller's Teasel** (*D. fullónum*).—Leaves sessile, undivided; scales of the receptacle hooked at the extremity; involucres spreading, or turning downwards; root biennial. The chief difference between this and the foregoing species consists in the hooked bristles, but the flowers are also generally

1 FULLERS TEASEL
Dipsacus fullonum

2 WILD TEASEL
D. sylvestris

3 SMALL TEASEL
D. pilosus

paler in colour. As the hooks disappear when the plant is grown on poor soils, there is much reason to believe that it is but a variety of *D. sylvéstris.* Though occurring occasionally in waste places and on hedge-banks, the Fuller's Teasel cannot be regarded as truly wild; having been long cultivated for the use of the cloth manufacturers, it is often found apparently wild near the Teasel fields.

In some of our northern counties, as well as in Wiltshire, Essex, Somersetshire, and Gloucestershire, large quantities of the Fuller's Teasel are planted that their chaffy heads may be used in carding wool. No mechanical contrivance answers this purpose so well as to supersede this primitive method of dressing woollen cloth; and each piece of cloth is found to consume from 1,500 to 2,000 Teasel heads. The heads are fixed round a large wheel, which is made to revolve in such a way that the awns may, as it is termed, "tease" the nap of the cloth. Dyer, in his poem, "The Fleece," alludes to the treatment which the cloth receives after having been thoroughly wetted:—

> "Then up-hung on rugged tenters to the fervid sun,
> Its level surface reeking, it expands,
> And brightening in each rigid discipline,
> And gathering worth, as human life, in pains,
> Conflicts and troubles. Soon the clothier's shears
> And burler's thistle skims the surface sheen."

The Teasel is usually grown by small farmers or cottagers, and its produce is very uncertain, being much affected by the season. There is also considerable trouble in drying the heads so as to preserve the hooks from breaking off. The large heads are technically termed "Kings," and the smaller "Princes"; the latter are better adapted for the finer cloths, while the larger are used for coarse thick fabrics. In Essex it was some years since customary to sow caraway along with the Teasel. The Teasel-gatherers during July or August collect the heads into bundles for the market. Manufacturers rather give the preference to the Teasels reared in Gloucestershire, in which county they are said to have been earliest planted. They are believed to have been cultivated first in this country about the latter part of the reign of Edward III.

The French call this plant *Chardon à Foulon;* the Germans, *Kardendistel;* the Italians, *Dissaco;* the Dutch, *Vollers Kaarden;* and the Spaniards, *Cardeucha;* most of the European names, like our own, referring to its use. This is very ancient, and either this or some similar plant seems to have been used by the celebrated Roman fullers, whose occupation gave employment to so large a number of people. Beckmann says that the fullers received the cloth as it came from the loom, that it might be "scoured, walked, and smoothed." This "walking" was effected by stamping it with the feet. The rough wool raised by this operation was combed off partly by the skin of a hedge-hog, and partly by some plant of the thistle kind, in order to give the cloth a nap. Though the Teasel is not a thistle, yet it was probably considered one in former days, and its old English as well as German name still hints at its connection with the thistle tribe.

It is remarkable that the pile or nap of the cloth should in India be drawn out by means of a plant, for Sir Joseph Hooker says that in the Himalaya the

blankets were made of goats'-wool, teased into a satiny surface by little Teasel-like brushes of bamboo.

Old writers recommend Teasel-heads for hygrometrical purposes. "Tezils, or Fuller's thistle," says Wilsford, "being gathered and hung up in the house when the aire may come freely to it, upon the alteration of cold and windy weather will grow smoother, and against rain will close up his prickles."

3. **Small Teasel** (*D. pilósus*).—Leaves stalked, with a small leaflet at the base on each side; stem angular, rough, with small prickles turning downwards; flower-stalks bristly; leaves egg-shaped, pointed, and serrated; root biennial. The Teasels hitherto described could not be mistaken for any other plants. This species has, however, at first sight much the appearance of a scabious. It is not a common plant, but grows here and there in moist hedges south of Yorkshire. The author has found it about Wouldham, in Kent, and it occurs in various parts of Norfolk, Suffolk, Sussex, Berkshire, and Surrey. The heads of flowers are nearly globose, rarely so large as a walnut, the bristly receptacle being studded, in August and September, with whitish corollas, having remarkably protruding anthers. The stem is three or four feet high, branched, and leafy; the whole plant is very rough. It has been commended as affording a sudorific medicine.

2. Scabious (*Scabiósa*).

1. **Devil's-bit Scabious** (*S. succísa*).—Corolla 4-cleft, nearly regular, hairy; heads of flowers nearly globose; bracts of the involucre in two or three rows; root-leaves numerous; stem-leaves usually few; root perennial. The rich purplish-blue flowers of this Scabious, with their reddish anthers, may be seen from July to October growing among the short grasses of the dry pasture-lands of our hillsides, and standing on a stem a foot or more in height. It is particularly abundant on chalky lands, but is found on other soils, and adorns heaths and meadows. The short blackish root of the plant terminates abruptly, being what the botanist terms *premorse*, and looking exactly as if bitten off, though this condition is rarely, if ever, apparent during the first year of growth. The notion once prevailed very generally that, to use the words of an old writer, "The Divile for envie that he beareth to mankind, bit it off, because that otherwise it would be good for manie uses." Now that all can read the Scriptures, and trace there all that has ever been revealed concerning the Spirit of Darkness, the Great Enemy of man, these notions of our fathers are seen plainly enough to be absurd; yet learned men of those times gravely declared them, and ignorant men received them with unquestioning faith. Another old herbalist (Culpepper) says: "The herb or the root (all that the devil hath left of it), being boiled in wine and drank, is very powerful against the plague and all pestilential diseases or fevers, poisons also, and the bitings of venomous beasts. It helpeth also those that are inwardly bruised by any casualty or outwardly by falls or blows." He states that "This root was longer, until the devil (as the friars say) bit away the rest of it from spite, envying its usefulness to mankind; for sure he was not troubled with any disease for which it is proper." Gerarde, however, very properly describes these opinions as the sayings of "old fantasticke charmers," but he places great faith in the efficacy of the

1. DEVILS-BIT SCABIOUS.
Scabiosa succisa

2. SMALL SCABIOUS.
S. columbaria

3. FIELD KNAUTIA.
Knautia arvensis

Pl. 109.

herb. The strange and, as it appears to us, profane notion seems to have been also shared on the Continent, for one of the French names of the plant is still *Mors de Diable*, and the Dutch call it *Duvelles bit*. It is, however, more generally in France now called *La Scabieuse*, and in Holland *Schurftkruid*. It is the *Scabiosa* of the Italians; the *Escabiosa* of the Spanish; and the *Skabiose* of the Germans, these names all referring to its general use in cutaneous disorders, for which it is highly extolled by Etmüller. The róot is slightly bitter and astringent. Linnæus says that the dried leaves are used to dye wool of a yellow or green colour. The beautiful and fragrant Scabious of our gardens (*S. atro-purpúrea*), the Mourning Bride, as the flower is often called, affords an excellent green dye, and it has been suggested that it might yield a good ingredient for tanning leather.

2. **Small Scabious** (*S. columbária*).—Corolla 5-cleft, downy, the outer flowers longest; heads nearly globose; root-leaves oblong, variously cut, upper leaves pinnatifid; root perennial. This species is common on grassy lands, especially on those of the east coast of England. Its purplish-lilac flowers, with yellow anthers, have a more radiant form, as if more fully expanded, than those of the premorse kind. Its leaves, too, are of a lighter hue, the flowers much paler, and the whole plant stouter. Its stem is about a foot high, and it flowers in July and August.

3. Knautia (*Knaútia*).

Field Knautia (*K. arvénsis*).—Lower leaves simple, slightly serrated, and hairy; stem-leaves pinnatifid; stem not much branched, bristly; inner calyx with a fringe of 8—16 awned teeth; root perennial. This tall and handsome plant often overtops the ripening corn in June and July, or is levelled with it by the reaper a month later. The flowers are so much like those of the scabious, that the plant was long retained in that genus, and called *Scabiósa arvensis*. It grows, too, very commonly in meadows in all parts of the kingdom, and we might say with the American poet, Lowell, as we look at some gathered or stray blossom—

> "Then think I of deep shadows in the grass,
> Of meadows where in sun the cattle graze;
> Where as the breezes pass,
> The gleaming rushes bend a thousand ways:—
> Of leaves that slumber in a cloudy mass,
> Or whiten in the wind:—of waters blue,
> That from the distance sparkle through
> Some woodland gap:—and of a sky above,
> Where one light cloud, like a stray lamb, doth move."

The flowers of the Knautia are large and convex, the outer florets being larger and bluer than the inner ones, and cut into unequal segments. It forms a beautiful addition to the wild nosegay gathered at this season, and it is amusing to see how, under the influence of tobacco smoke, the petals gradually assume a rich light-green colour, and seem at first uninjured by the process, though they wither soon after. Several bluish-lilac flowers are affected in a similar way by the influence of this smoke; and a purple violet, if placed in a bottle containing smelling-salts, soon assumes a most singular and beautiful green tint.

Order XLVI. COMPOSITÆ—COMPOUND FLOWERS.

Calyx tube adhering strictly to the ovary, the limb mostly becoming a pappus that is either a chaffy margin of the fruit, or a tuft, or a ring of bristles, hairs, or silky feathers; corolla regular or irregular, tubular or strap-shaped; stamens 4 or 5, united by their anthers; ovary inferior, 1 to each style, 1-celled; style simple, with a simple or 2-cleft stigma, sheathed by the tube of the anthers; fruit a solitary erect seed, crowned by the pappus, which usually consists of a plume of simple or serrated feathery hairs, sometimes elevated on a stalk, but which is in other cases merely a chaffy margin. The blossoms of this order are called compound because they consist of a number of small flowers (florets), inclosed within a calyx-like involucre, composed of a number of bracts. These florets are inserted upon the dilated top of the flower-stalk (receptacle) which is either furnished with chaffy scales or naked. This order is divided into three sub-orders.

Sub-order I. The Chicory Tribe (*Cichoraceæ*).

In this the florets are all strap-shaped and perfect; that is, each contains 5 stamens and a pistil, which is not swollen beneath its fork. The plants mostly abound in milky juice. Some are slightly astringent, others bitter, but they are chiefly remarkable for their narcotic properties. They are generally innocuous plants, and their bitterness being lessened by culture, they form in some cases wholesome vegetables. The prevailing colour of the British species of this division is yellow, as in the Dandelion, Goat's-beard, and Hawkweeds; but the Alpine Sow-thistle and the Salsafy have purple, and the Chicory bright blue flowers.

Sub-order II. The Thistle Tribe (*Cynarocephalæ*).

In this division the florets form a convex head, and are all tubular and perfect, except in *Centauréa*, in which the outer florets are larger than the inner, and are destitute of stamens and pistils. The style is swollen below its branches. The flowers are usually purple, often varying to white; the Carline-thistle appears to be yellow, owing to the greater size of the bracts, but the florets are purple; the Corn-flower is bright blue. Their properties are bitter and tonic.

Sub-order III. Corymbiferæ.

This sub-order is composed of two groups. In the first the florets are all tubular, 5-cleft, having stamens and pistils, and forming a flat head, the style not swollen below the stigma. These form the group *Tubiflorœ*. In the second division, termed *Radiatœ*, the central florets are tubular, 5-cleft, having stamens and pistils; the outer florets are strap-shaped, forming a ray, and furnished with pistils only: the style not swollen below the stigma. *Senecio vulgaris*, the Common Groundsel, has no rays. The flowers of the first division of this sub-order are mostly yellow; but some, like the Hemp-agrimony and Butter-bur, have flesh-coloured or purple flowers. A powerfully bitter principle resides in many of the plants, as in the Wormwood. In the *Radiatœ* the prevailing colour of the disk is yellow, and of the ray

white or yellow. Of the former, the Daisy is an example; the latter may be seen in the Golden Rod and Corn-marigold. In one instance, the Yarrow, both disk and ray are white; and in some, as the Michaelmas Daisy, the petals of the ray are purple. Several tonic and bitter plants, like the Chamomile, are found in this group.

The order of compound flowers is very extensive. The number of genera is given by Hooker as 768, and of species as 10,000; the Compositæ comprehend about one-tenth of all known plants, their proportions varying in different parts of the world. In temperate regions they are mostly herbaceous plants, but near the equator they are shrubs or trees.

It should be noted that in the conspicuous grouping of otherwise insignificant flowers the Compositæ show a considerable advance upon the Umbelliferæ. The success of this form of inflorescence is largely due in the *Radiatæ* to the plan of enlarging the outer series of florets in order to make the flower-head more attractive—a development of the method adopted by guelder-rose and scabious. Most of the flowers in this order produce honey, and the anthers shed their pollen before the stigmas are mature. Owing to the union of the anthers a tube is formed into which the pollen is shed on top of the pistil. Later the pistil divides at the top into two branches, the stigmas, but at first these have their sensitive faces pressed together, and as the pistil lengthens they act as a brush to push the pollen out of the anther-tube against the bodies of insects that walk over the flower-head in search of honey. Insects that visit Composites are therefore always more or less covered with pollen, part of which they leave on the stigmas of older heads. Plants that mature their anthers first are termed proterandrous or protandrous, whilst those in which the stigmas are developed first are known as proterogynous or protogynous.

Sub-order I. CHICORY TRIBE (*Cichoraceæ*).

All the florets strap-shaped, having stamens and pistils.

1. GOAT'S-BEARD (*Tragopógon*).—Involucre simple, of 8—10 long bracts in one series, united at the base; receptacle dotted; fruit rough, with longitudinal ridges tapering into a beak; pappus feathery. Name in Greek signifying a goat's-beard, from the bearded fruit.

2. OX-TONGUE (*Helmínthia*).—Involucre of about 8 equal bracts, surrounded by 3—5 heart-shaped leaf-like bracts; receptacle dotted; fruit rough, with transverse wrinkles, rounded at the end and beaked; pappus feathery. Name from the Greek, *helminthos*, a small worm, from the form of the fruit.

3. PICRIS.—Involucre of many compact and upright equal bracts, with several small narrow ones spreading at the base; fruit rough, with transverse ridges, not beaked; pappus of two rows, the inner one only feathery. Name from the Greek *pikros*, bitter.

4. HAWK-BIT (*Apárgia*).—Involucre with the bracts imbricated* unequally, the outer scales smaller, black and hairy, in several rows; receptacle slightly dotted; fruit tapering to a point; pappus of one row, feathery. Origin of name uncertain.

5. THRINCIA (*Thríncia*).—Involucre of several rows, the outer smaller,

* *Imbricated*, laid one over the other, like tiles on a house.

receptacle slightly dotted; fruit of the outer florets forming a short scaly cup, of the rest long and feathery. Name from the Greek, *thrinkos*, a battlement, from the turret-like form of the seed-crown of the marginal florets.

6. CAT'S-EAR (*Hypochæris*).—Involucre oblong, bracts numerous, imbricated; receptacle chaffy; fruit rough, often beaked; pappus feathery, having often a row of short bristles outside. Name in Greek denoting its fitness for hogs.

7. LETTUCE (*Lactúca*).—Involucre oblong, its bracts membranous at the margin and imbricated, containing but few flowers; receptacle naked; fruit flattened, beaked; pappus hairy. Name from *lac*, milk, from its milky juice.

8. BLUE SOW-THISTLE (*Mulgédium*).—Involucre double, many-flowered, inner of one row of equal bracts, outer of short lax ones overlapping each other; receptacle naked; pappus brittle. Named from *mulgeo*, to milk, from its milky juice.

9. SOW-THISTLE (*Sónchus*).—Involucre with 2 or 3 rows of unequal imbricated bracts, swollen at the base, and few-flowered; receptacle naked; fruit flattened, transversely wrinkled, not beaked; pappus hairy. Name in Greek, alluding to its hollow stems.

10. HAWK'S-BEARD (*Crépis*).—Involucre double, inner of one row, outer of short loose bracts; receptacle naked; fruit not flattened, furrowed, tapering upwards; pappus soft and feathery, usually white, abundant. Name in Greek signifying a sandal, but the reason for this name is unknown.

11. BORKHAÚSIA.—Involucre oval, with awl-shaped bracts which soon fall off; receptacle naked; fruit rounded, transversely wrinkled, and having a long beak. Name in honour of Moritz Borkhausen, a German botanist.

12. DANDELION (*Leóntodon*).—Involucre imbricated with numerous bracts, the outer ones loose, and often turned downwards; receptacle dotted; fruit slightly flattened, rough, with a long and slender beak. Name from the Greek, *leon*, a lion, and *odous*, a tooth, from the tooth-like edges of the leaves.

13. HAWKWEED (*Hierácium*).—Involucre imbricated with numerous oblong bracts; receptacle dotted; fruit angular, furrowed, with an entire or toothed margin at the top, without a beak. Name from the Greek, *hierax*, a hawk, because it was supposed that birds of prey used the plant to strengthen their powers of vision.

14. NIPPLE-WORT (*Lápsana*).—Involucre a single row of erect bracts, with 4–5 small ones at the base, few-flowered; receptacle naked; fruit flattened, furrowed; pappus none. An old Latin name.

15. SUCCORY (*Cichórium*).—Involucre in two rows, inner of 8 bracts, which bend back after flowering, outer of 5 smaller loose scales; receptacle naked, or slightly hairy; fruit thick above, tapering downwards; pappus a double row of chaffy scales. Name from the Arabic, *chikoùryeh*.

Sub-order II. THISTLE-TRIBE (*Cynarocephalæ*).

Florets all tubular.

16. BURDOCK (*Árctium*).—Involucre globose, leathery bracts ending in hooked points; receptacle chaffy; fruit oblong, 4-sided; pappus short. Name from the Greek, *arctos*, a bear, from the roughness of the involucres.

17. SAW-WORT (*Serrátula*).—Stamens and pistils often on different plants; involucre imbricated, bracts not prickly; receptacle chaffy or bristly; fruit flattened, not beaked; pappus hairy. Name from the Latin, *serrula*, a little saw, the leaves being finely serrated.

18. SAUSSÚREA.—Involucre imbricated, bracts not prickly; anthers bristly at the base; receptacle chaffy; pappus double, outer bristly, inner longer, feathery. Named in honour of the two De Saussures, Swiss botanists.

19. THISTLE (*Cárduus*).—Involucre swollen below, imbricated with spinous bracts; receptacle bristly; pappus hairy, united by a ring at the base, and soon falling off. The Latin name of the plant.

20. PLUME-THISTLE (*Cnícus*).—Involucre swollen below, imbricated with spinous scales; pappus equal and feathery. Name from the Greek for a thistle—*knekos*.

21. COTTON-THISTLE (*Onopórdum*).—Involucre swollen below, imbricated, the leathery bracts spreading and spinous; receptacle honeycombed by little pits with toothed edges; fruit 4-angled; pappus hairy, rough. Name of Greek origin.

22. CARLINE-THISTLE (*Carlína*).—Involucre imbricated, swollen at the base, the outer bracts loose, with numerous spines, the inner coloured, spreading, and resembling a ray; receptacle chaffy. Name the same as Carolina, from a tradition that an angel showed the root of one of the species to Charlemagne, as a remedy for the plague.

23. KNAPWEED, CORN BLUEBOTTLE, ETC. (*Centaurèa*).—Involucre imbricated; receptacle bristly; pappus hairy or none; outer florets large, irregular, destitute of stamens and pistils. Name from the Centaur Chiron, who is said to have used it for healing wounds.

Sub-order III. CORYMBIFERÆ.

Florets of the disk tubular; marginal florets often strap-shaped.

1. THE TANSY GROUP (*Tubiflorœ*).

24. BUR-MARIGOLD (*Bídens*).—Involucre of many bracts, the outer ones often leafy; pappus of 2—5 awns, which are rough, with minute teeth pointing downwards. Name from the Latin, *bis*, double, and *dens*, a tooth, from the pappus bristles.

25. GALINSOGA (*Galinsoga*).—Flower-heads small, with yellow ray-florets. Involucre of 1 row of bracts with chaffy margins; receptacle conical, with lance-shaped scales; pappus of fringed scales in one series. Named after De Galinsoga, the Spanish botanist.

26. COTTON-WEED (*Diótis*).—Involucre hemispherical, bracts oblong, imbricated; pappus none; corolla with two ears at the base, which remain and crown the fruit. Name from the Greek, *dis*, double, *ous*, *ótos*, an ear, from the form of the fruit.

27. TANSY (*Tanacétum*).—Involucre cup-shaped, imbricated; receptacle naked; fruit crowned with a chaffy border. Name altered from the Greek *athánatos*, not dying.

28. WORMWOOD (*Artemísia*).—Involucre roundish, imbricated, containing but few flowers. Name from Artemis, the Diana of the Greeks.

29. HEMP-AGRIMONY (*Eupatórium*).—Heads few-flowered; involucre imbricated, oblong; receptacle naked; styles much longer than the florets. Name from Mithridates Eupator, King of Pontus, who is said to have first used it.

30. GOLDY-LOCKS (*Linosýris*).—Involucre of one row of bracts, surrounded by several longer ones, or imbricated; receptacle honeycombed; pappus in a double row, feathery, rough. Name from *linum*, flax, and *osyris*, a name given by Pliny to some flexible plant.

31. EVERLASTING (*Antennária*).—Stamens and pistils in separate flowers, and on different plants; involucre imbricated, the inner ones coloured or chaffy at the ends; receptacle naked; pappus hairy. Name from the hairs of the male pappus, which resemble the antennæ of insects.

32. CUDWEED (*Gnaphálium*).—Involucre roundish, dry, imbricated, often coloured; receptacle naked; pappus hairy. Name from the Greek, *gnaphálion*, soft down, with which the leaves are covered.

33. FILÁGO.—Involucre tapering upwards, imbricated, of a few long, pointed bracts; receptacle chaffy in the circumference; pappus hairy; florets few, the outer ones bearing pistils only. Name from the Latin, *filum*, a thread, from the thread-like down which invests the plant.

34. BUTTER-BUR (*Petasites*).—Involucre a single row of narrow bracts; receptacle naked; stamens and pistils usually on different plants. Name from the Greek, *pétasos*, a covering for the head, from the large size of the leaves.

2. DAISY GROUP (*Radiatæ*).

35. COLT'S-FOOT (*Tussilágo*).—Involucre a single row of narrow bracts, with a few outer shorter ones; receptacle naked; florets of the ray narrow, in several rows; of the disk few; all yellow. Name from the Latin, *tussis*, a cough, from its use in that malady.

36. FLEA-BANE (*Erígeron*).—Involucre imbricated with narrow scales; receptacle naked; florets of the ray in many rows, very narrow, different in colour from those of the disk. Name in Greek signifying growing old early, from the early appearance of the grey seed-down.

37. STARWORT (*Aster*).—Involucre imbricated, a few scales on the flower stalk; receptacle naked, honeycombed; florets of the ray in one row, white or purple; of the disk, yellow; pappus hairy, in many rows. Name from the Greek, *aster*, a star.

38. GOLDEN-ROD (*Solidágo*).—Involucre imbricated; receptacle naked florets all yellow; pappus hairy, in one or two rows. Name from the Latin *solidare*, to unite, from its supposed property of healing wounds.

39. GROUNDSEL AND RAGWORT (*Senécio*).—Involucre imbricated and oblong, the bracts often tipped with brown, a few smaller ones at the base florets all yellow, the outer sometimes wanting. Name from the Latin, *senex*, an old man, from the white seed-down.

40. LEOPARD'S-BANE (*Dorónicum*).—Involucre cup-shaped, bracts in two rows, equal; florets all yellow; pappus hairy, wanting in the florets of the ray. Name of uncertain origin.

41. ELECAMPANE, ETC. (*Ínula*).—Involucre imbricated in many rows receptacle naked; florets all yellow; anthers with two bristles at the base

Name, the old Latin designation, probably a corruption of *Helénula*, Little Helen.

42. FLEA-BANE (*Pulicária*).—Involucre loosely imbricated, in few rows; pappus in two rows, outer one short, membranous, cup-shaped, and toothed. inner hairy; receptacle naked; anthers with bristles at their base. Name from *pulex*, a flea, to which insect the plant is said to be obnoxious.

43. DAISY (*Bellis*).—Involucre of two rows of equal blunt bracts; receptacle conical; outer florets white, inner yellow; pappus none. Name from the Latin, *bellus*, pretty.

44. OX-EYE (*Chrysanthemum*).—Involucre nearly flat, the bracts membranaceous at the margin; receptacle naked; pappus none. Name from the Greek, *chrysos*, gold, and *anthos*, a flower.

45. WILD CHAMOMILE (*Matricária*).—Involucre conical, hemispherical, or nearly flat, the scales imbricated, and usually membranaceous at their margins; pappus a membranaceous border, or wanting; receptacle naked. Name from its former use in affections of the *matrix*.

46. CHAMOMILE (*Anthemis*).—Involucre cup-shaped, or nearly flat, the scales imbricated, membranaceous at their margins; receptacle chaffy; pappus none, or a membranaceous border. Name from the Greek, *anthos*, a flower, from its numerous blossoms.

47. YARROW, MILFOIL (*Achilléa*).—Involucre egg-shaped, or oblong, imbricated; receptacle flat, chaffy; florets of the ray broad, 5—10; pappus none. Name from Achilles, who is said to have first used it as a healing herb.

ANOMALOUS GENUS.

48. BUR-WEED (*Xánthium*).—Stamens and pistils in separate flowers on the same plant. Stamen-bearing flowers with an involucre of few scales, and many small heads of flowers upon a common receptacle; calyx none; corolla sessile. Pistil-bearing flower with its involucre single, prickly, with two beaks, inclosing two flowers; calyx none; corolla none; the two stigmas alone protruded from the beaks. Fruit one-seeded. Name from *xanthos*, yellow or fair, because an infusion is said to have been used for staining the hair yellow.

Sub-order I. CHICORY TRIBE (*Cichoraceæ*).

1. GOAT'S-BEARD (*Tragopógon*).

* *Florets all strap-shaped; having stamens and pistils.*

1. **Yellow Goat's-beard** (*T. praténsis*).—Involucre about the same length as the corolla, or rather longer; leaves broad at the base, clasping the stem, very long, tapering, channelled, and undivided; flower-stalks slightly thickened above; root biennial. This plant, which is not uncommon, is one of easy recognition; for the long leaves, almost as slender as those of the young wheat, distinguish it at once from the other species of compound flowers, with their variously cut foliage. The stem is about two feet high, with sea-green bloom upon its surface, and the flower is yellow, with either yellow or dark-brown anthers. The blossom forms one of the best floral

indices of the hour of the day, opening at sunrise, and closing at noon. It flowers from May to July. Bishop Mant says of it:—

"And goodly now the noontide hour,
When from his high meridian tower
The sun looks down in majesty,
What time about the grassy lea
The Goat's-beard, prompt his rise to hail
With broad expanded disk, in veil
Close mantling wraps its yellow head,
And goes, as peasants say, to bed."

This plant in country places is called Noonday Flower, Jack-go-to-bed-at-noon, and Star of Jerusalem.

After flowering, the round ball of pappus is very conspicuous, being larger than that of any other wild flower, concave above, and interwoven; not white, like that of the dandelion, but of a light brownish colour, and each little shuttlecock-like plume placed on a long stalk. It is to this ball that the plant owes its rustic name of Goat's-beard, which has its synonym in several European countries. Thus the Germans call it *Bocksbart;* the Dutch, *Boksbaard;* the Italians, *Barba di becco;* the Spaniards, *Barba cabruna;* and the French, *Sersifi.*

Gerarde says of the Goat's-beard: "The rootes boyled in water until they be tender, and buttered as parsneps and carrots, are a most pleasing and wholesome meate, in delicate taste farre surpassing either parsneps or carrots; which meate procures appetite, warmeth the stomacke, prevaileth greatly in consumptions, and strengtheneth those that have been sicke of a long lingering disease." Our species includes the *T. minor* and the *T. grandiflora* of some botanists; the var. *minor*, which is the more plentiful in this country, has the involucral bracts twice the length of the rays. The plant grows in meadows and pastures, and sometimes in hedges.

2. **Purple Goat's-beard,** or **Salsafy** (*T. porrifólius*).—Involucre longer than the florets; flower-stalks thickened upwards; leaves tapering, slightly broader just above the base, then gradually narrowing to an acute point; root perennial. This pretty purple species is often seen in gardens, and in the moist meadows of some parts of the kingdom; but it is local. It is rather a naturalized than a truly wild flower, and is very similar, save in the colour of its blossom, to the common Goat's-beard. The long tapering roots may be much improved by culture; they are mild and sweet, and resemble asparagus in flavour. The plant is still cultivated in France and Germany for these edible roots, and was so in England previously to the introduction into our kitchen-gardens of the Spanish Salsafy (*Scorzonera hispanica*), which occurred soon after the skirret had been first planted here. The roots of the common Goat's-beard are equally sweet and nutritious, and some old writers preferred them to those of the purple kind. Like the other species, it closes at noonday.

2. Ox-tongue (*Helmínthia*).

Bristly Ox-tongue (*H. echioides*).—Outer scales of the involucre five in number, large, heart-shaped, with rounded notches at the margin; stem rough, with stiff hairs seated on tubercles; lower leaves lanceolate, upper clasping

1 YELLOW GOAT'S BEARD
Tragopogon pratensis

2 PURPLE G.
T. porrifolius

3 BRISTLY OX-TONGUE
Helminthia echioides

4 HAWK-WEED PICRIS
Picris hieracioides

the stem, and heart-shaped; root perennial. This plant is clearly distinguished by its large heart-shaped involucre. Its leaves are glossy green, their surface, like the stem, being dotted over with many white warty protuberances, from which the prickles spring. The juice is milky, and the leaves, when young, form a good vegetable, being either boiled, or, in some countries, pickled. The French call the plant *Langue de Bœuf.* The shining seeds are a beautiful object for the microscope. Its English range is from Durham southward. Dr. George Johnston remarks, that he found the Ox-tongue at Berwick, by the Pier Road, and it extends thence to Haddington. It occurs but rarely in Ireland, about Dublin. The stem of this plant is two or three feet high, and much branched. Its small yellow heads appear from June to September. It grows chiefly on dry banks and field borders, and is not very generally distributed, though by no means uncommon in Kent, Devonshire, and some other counties. Sir J. D. Hooker retains this in the Linnean genus *Picris.*

3. Picris (*Pícris*).

Hawkweed Picris (*P. hieracioídes*).—Stem branched, and, as well as the leaves, rough with forked and hooked bristles; upper leaves somewhat clasping, lance-shaped, and toothed; flower-stalks with numerous scale-like bracts; flower-heads corymbose, outer bracts of the involucre narrow and lax; root perennial. This is rather a slender plant, two or three feet in height, its handsome yellow flowers expanding in June and July. It is very common on the borders of fields, road-sides, and sea-cliffs as far north as Roxburgh; also in the Channel Islands. It is very bitter, hence its name of *Picris.* The French also call it *Picride;* the Germans, *Bitterkraut;* and the Dutch, *Bitterkruid.*

4. Hawk-bit (*Apárgia*).

1. **Rough Hawk-bit** (*A. híspida*).—Leaves all from the root, pinnatifid, with the lobes pointing backward, rough with forked bristles; stalk swollen at top, bearing a single head; pappus with an outer row of bristles; root perennial. This plant, which opens its yellow flowers from June to September, is very common on pastures and meadows, and spangles over the short grasses of the gravelly soils—

> "Where the furze has leave to wreathe
> Its dark prickles o'er the heath;
> Where the grey-grown hawthorns spread
> Foliaged houses o'er one's head,
> By the sporting axe untouch'd;
> Where the oak-tree gnarl'd and notch'd
> Lifts its deep-moss'd furrow'd side
> In Nature's grandeur—Nature's pride."

2. **Autumnal Hawk-bit** (*A. autumnális*).—Root-leaves linear, lanceolate, toothed, or pinnatifid, nearly smooth; stalk branched, scaly, and thickened above; involucre smooth or hairy: a variety occurs with smooth leaves, stalk mostly simple, and the involucre shaggy, with greenish-black hairs; and another with hairy leaves, branched stalk, and involucre with dark hairs; root perennial. This plant is not unfrequent in meadows and pastures, its deep yellow flowers expanding in August and September. They

are succeeded by brownish-white pappus. The plant is tall and slender, the many-flowered stalk slightly hairy, two or three feet high, and swollen beneath the flowers. The two species of *Apargia* were included with *Thrincia* in the Linnean genus *Leontodon.*

5. THRINCIA (*Thríncia*).

Hairy Thrincia (*T. hírta*).—Leaves all from the root, lanceolate, entire, or deeply toothed, bristly, or hairy, with forked or simple hairs; stalks simple, hairy below; root perennial. This plant is very frequent, from July to September, on heaths and downs, bearing a yellow flower head on each of its purplish, somewhat hairy stalks. It is from four to six inches high, with spreading rough leaves, more or less lobed. Mr. Babington mentions that its root is premorse—that is, it appears to have been bitten short.

6. CAT'S-EAR (*Hypochæris*).

1. **Smooth Cat's-ear** (*H. glábra*).—Stem branched, leafy, smooth; root-leaves oblong, lobed; involucre smooth, equalling the florets; root annual. The small yellow heads of this plant, scarcely longer than the involucre, are to be seen, from June to October, in gravelly soils; but the species is not frequent. The stem, which is a foot or more in height, is branched, and bears a few leaves. A variety (*H. balbisii*) is described with beaked fruits.

2. **Long-rooted Cat's-ear** (*H. radicáta*).—Leaves all from the root, pinnatifid, with the lobes pointing backwards, bristly; stalks branched, smooth, with a few scales below the flowers. This plant sends its perennial roots so far down into the earth, that it is difficult of eradication. It is a common and troublesome plant on some soils, both on this account, and because its leaves, which spread horizontally, are so closely pressed to the earth as to prevent the growth of the grass. It is, however, more common on hedge-banks and waste places than on meadow lands. Swine are said to be very fond of its roots, and not only does this circumstance account for the name of the genus, but it is alluded to in some of the familiar names of various countries of Europe. The French call it *Porcelle;* the Dutch *Biggen-kruid;* the Germans, *Saukraut;* the Spaniards, *Hierbà del alcon;* the Danes, *Kongpeune.* The large yellow flower-heads may be seen on their long branched flower-stalks during July and August.

3. **Spotted Cat's-ear** (*H. maculáta*).—Stem almost leafless, solitary, nearly smooth; leaves oblong, undivided, toothed, spotted on the upper surface; involucres slightly bristly; root perennial. This is a rare plant, occurring on some open downs of chalky or limestone districts in Suffolk, Cambridgeshire, and other counties. The stem is about a foot high, stout, and having at its summit two or three large deep yellow heads, with two or three small scale-like bracts beneath them. The leaves are all from the root, and the plant blossoms in July and August.

7. LETTUCE (*Lactúca*).

Beak long, white; keel of leaves prickly.

1. **Strong-scented or Acrid Lettuce** (*L. virósa*).—Leaves spreading, oblong, toothed, two-eared, and clasping the stem; stem leafy, branched

1. ROUGH HAWKBIT.
   Apargia hispida.
2. AUTUMNAL H.
   A. autumnalis.
3. HAIRY THRINCIA.
   Thrincia hirta.
4. SMOOTH CATS-EAR.
   Hypochoeris glabra.
5. LONG-ROOTED C.
   H. radicata.
6. SPOTTED C.
   H. maculata.

above; heads in panicles; beak as long as the black fruit; root biennial. On some chalky soils this Lettuce may be seen putting forth its yellow heads from May to August. They are in loose panicles, and are very small in comparison with the large and numerous leaves. The stem is prickly, from two to four feet high, branched at the upper part, and having a few leaves scattered over it. The leaves about the root are oblong, or inversely egg-shaped, and very numerous. This Lettuce can hardly be called a common plant in England, and in Scotland it is very rare. It is not rendered attractive by any odour, grace, or beauty, and would by any but a botanist be passed by as an uninteresting weed. On some chalk cliffs it attains a gigantic size, as on those around Lydden Spout, near Dover. It grows there in such luxuriance as to give a peculiar feature to those steep precipices, being sometimes eight feet high.

This Lettuce is found throughout Europe on hedges, walls, and field-borders, and is also cultivated to a large extent for the milky juice which it yields, which, when dried, has the name of *Lactucarium*, and which, as Gerarde says, "hath a very strong and grievous smell of opium." All our wild Lettuces, as well as the garden species, possess this bitter and narcotic juice in greater or less degree, and it has when dried a considerable resemblance to opium. If we make an incision in the stem either of this weed or of the garden Lettuce, just when it is beginning to flower, a milky juice exudes, which gradually becomes brown, and hardens into this substance. It may be used in cases in which the poppy is inadmissible; and the *Lactúca virósa* has been largely grown at Brechin, in Forfar, as well as at some other places, for the pharmaceutical preparation. It is very important to select a soil well suited to the growth of this Lettuce. At Brechin the plants were reared in a valley opening to the south, where they sent up large and juicy stems. The milky juice which exudes on incision is suffered to harden in the sun until it becomes a thin cake, and when this is removed another incision is made in the stem, and often, when the plant is luxuriant, a third incision may safely be ventured on. Our climate is less favourable than some others for the growth of the plant, which, nevertheless, in many cases proves very productive.

This narcotic juice may be obtained, also, from other species of the Lettuce, and the garden Lettuce (*Lactúca satíva*) is the plant recognised by the London Pharmacopœia for supplying the substance. Dr. Christison remarks: "The London College, however, and many cultivators are wrong in restricting themselves to the garden Lettuce for the preparation of *lactucarium*. From information communicated to me several years ago by Mr. Duncan, chemist and druggist, of Edinburgh, who has often made *lactucarium* on a large scale, it appears that the *Lactúca virósa* yields a much larger quantity, and that the produce is of a superior quality. Nor is there any reason for dreading the narcotic properties of the wild Lettuce, the scientific name of which has given rise to an exaggerated notion of its activity. The results obtained by Mr. Duncan have since been confirmed by those of Schultz, in Germany, who found that a single plant of the garden Lettuce yields only seventeen grains of *lactucarium* on an average, while a plant of wild Lettuce yields no less than fifty-six grains. Mr. Duncan has made this observation also:

'Although the milkiness of the juice increases till the very close of the time of flowering, viz. in the wild Lettuce, till the month of October in this climate, the value of the *lactucarium* is deteriorated after the middle of the period of inflorescence; for subsequently, while the juice becomes thicker, a material decrease takes place in the proportion of bitter extract contained in it.'"

2. **Prickly Lettuce** (*L. scariola*).—Leaves upright, arrow-shaped at the base, and clasping, deeply cut; panicle leafy; beak as long as the pale fruit; root perennial. This species is rarely found in this country, but it grows on dry banks in some parts of Cambridgeshire and other counties. Its stem is leafy, from two to five feet high, bearing yellow flower-heads, with numerous heart-shaped bracts, in July and August. The plant is of paler colour than the last species, and the milky juice with which it abounds is of a somewhat less acrid nature. Many botanists believe that our garden Lettuce (*L. sativa*) is but an ameliorated form of this species, while other writers think that the Acrid Lettuce (*L. virosa*) is the origin of our garden Lettuces. These plants have been now so long under culture that it is impossible to trace whence they were derived; and it is remarkable that the Lettuce can be grown to as great perfection in a warm as in a temperate climate, provided the soil is rich and well supplied with water. Hence the Lettuces of Paris and Rome are as good as ours, and the Hindoo dines from as sweet and large a vegetable as that which supplies our salad. One of the cultivated Lettuces doubtless was introduced from the Greek islands, as it retains its old name of *Cos lettuce*.

The wild Prickly Lettuce, though a rare English plant, is plentiful in many parts of Europe. It is found on the hilly districts of Greece, and is probably the species referred to by Dioscorides. The ancients were well aware of the narcotic principles of this genus; for the Romans used the Lettuce both for salads and medicine, and the old poets prescribed a bed of Lettuce for the sleepless. Pliny, as translated by Dr. Holland, says: "Yet is there another distincte kinde of the black Lettuce, which for the plentie that it yieldeth of a milkie white juice, procuring drowsinesse, is termed *meconis;* although all of them are thought to cause sleepe. In old times, our ancestors knew no other lettuce in Italy but this alone, and therefore it took the name of the Latins, *Lactúca.*" Anyone who observes his own sensations after eating plentifully of a lettuce salad will find that it disposes him to sleep if night is advancing; while, if taken at a part of the day when we are unaccustomed to sleep, it soothes and calms the mind, and allays nervous irritability. As Pope says,

> "If your wish be rest,
> Lettuce and cowslip wine, *probatum est.*"

When we indulge freely, indeed, in a lettuce salad, we might be told that we were incipient opium-eaters; but, happily, we are not likely at one meal to take so large a portion of the *lactucarium* as would affect the brain to anything like intoxication.

Sir John Lubbock states that, when growing in sunny situations, the leaves of this species have a tendency to point north and south.

The Lettuce appears to have been planted in our garden early, but it was long before its growth became frequent. Turner mentions it in 1652 as a vegetable which was well known; but in the account of the Privy Purse

1 STRONG SCENTED LETTUCE
Lactuca virosa

2 PRICKLY L.
L. scariola

3 LEAST LETTUCE
L. saligna

4 IVY LEAVED L.
L. muralis

expenses of Henry VIII. in 1530 we find that the gardener at York Place received a reward for "bringing luttuze and cherries to Hampton Court." Gerarde in 1597 mentions eight varieties as being then in cultivation.

Spenser speaks of

"Cold lettuce and refreshing rosmarine."

Our wild Lettuces are never now cultivated for food, and it would need a long course of culture ere their acrid principles could be removed. The varieties, *L. sativa*, *crispa*, *perennis*, *quercina*, and a few others, are those commonly reared in the kitchen garden.

3. **Least Lettuce** (*L. saligna*).—Upper leaves narrow, entire, pointed, arrow-shaped at the base; lower leaves pinnatifid; beak twice as long as the fruit; root biennial. This rare plant is found chiefly in the south-eastern parts of England, on chalky places near the sea, or in salt marshes. It has a slender wavy stem, slightly branched, and about two feet high; and the plant has at first sight somewhat the appearance of a small osier: hence its name. It bears, in July and August, small heads of yellow flowers in alternate tufts, forming long clusters, which are so dense as to resemble spikes.

* * *Beak short; keel of leaves smooth.*

4. **Ivy-leaved Lettuce** (*L. muralis*).—Leaves pinnatifid, somewhat lyre-shaped, and toothed; the terminal lobe largest and angled; beak much shorter than the fruit; root perennial. This is the most common of our wild Lettuces, and is not unfrequent in woods or on old walls. It is a slender plant, having a stem one or two feet high, with small yellow heads, each of which has five regular florets, so that it resembles a simple flower of five petals. It is in blossom from June to August. The stalks of the clusters grow in a very angular direction, and the fruit is black. It has less narcotic principle in its juices than either of the other species.

The French call the Lettuce *La Laitue*, the Germans *Der Salat*. It is the *Salade* of the Dutch, the *Lattuga* of the Italians, and the *Lechuga* of the Spaniards. The greater number of the Lettuce family grow wild in Europe, a lesser number in Asia and Africa, very few in America, and none in the southern hemisphere.

8. Blue Sow-thistle (*Mulgédium*).

Alpine Blue Sow-thistle (*M. alpinum*).—Leaves lyre-shaped, arrow-shaped at the base; terminal lobe very large, triangular, halberd-shaped, and acute; stem unbranched; heads of flowers in racemes; bracts, flower-stalks, and involucres with glandular hairs; fruit ribbed. Few of our native lovers of flowers ever look upon this beautiful plant, save in the herbarium of one who has wandered among the rare and lovely blossoms which grow on the highland heights of North Britain. A few spots near rivulets in Forfar and Aberdeen are its only British localities; but in some countries at the north of Europe it is a frequent plant. In Lapland, where it grows among the trees on the slopes of mountains, it is called *Terja*, and its milky stem is peeled off and eaten raw by the people of those regions. It is intensely bitter, but the Laplanders, accustomed to eat it from childhood, relish it exceedingly. Some of them, however, told Linnæus, that when first they

began using it as food, they found its bitterness very unpleasant. It is only while young that the plant can be eaten, for as soon as the flowers expand, the stalk becomes hard and woody. It is about three feet high, and the flowers, which appear in July and August, are rich purplish-blue. Some writers term it *Sonchus alpínus*, or *S. cæruleus;* others *Lactuca alpina.*

9. Sow-thistle (*Sónchus*).

1. **Tall Marsh Sow-thistle** (*S. palústris*).—Leaves narrow, lanceolate, lasping the stem with arrow-shaped ears, lower ones pinnatifid with few egments, upper ones entire; stem without branches; root perennial. This arge Sow-thistle is very rare. It has been found in marshes in Cambridge, Essex, Huntingdonshire, Kent, Norfolk and Suffolk, but it is now almost extinct in this country. It bears, in August and September, pale yellow heads, and as its stem is often six feet high, the plant is very conspicuous on the flat green lands where it grows. The involucre of the flower is covered with glandular hairs which serve to entrap small creeping insects that seek to rob the flowers of their honey and pollen, without rendering service in return.

2. **Corn Sow-thistle, Milk-thistle** (*S. arvénsis*).—Leaves oblong, more or less pinnatifid or entire, toothed, often prickly, the upper ones clasping the stem; heads somewhat corymbose, usually covered, as are the flowering stems, with glandular bristles; involucres smooth; root creeping. Those who stray into the harvest fields of August can hardly have failed to observe among the brown corn the large yellow, star-like blossoms of this handsome plant. Each flower is as large as a half-crown piece, and grows on a slender stem which overtops the wheat, and is sometimes even four feet high, adding much to the beauty of the field.

"Stars they are wherein we read our history,
As astrologers and seers of eld;
Yet not wrapp'd about with awful mystery,
Like the burning stars which they beheld.

"Wondrous truths, and manifold as wondrous,
God hath written in the stars above;
But not less in the bright flow'rets under us
Stands the revelation of His love.

"Bright and glorious is that revelation
Written over this great world of ours!
Making evident our own creation,
In these stars of earth, these golden flowers."

This flower well deserves its name of *arvénsis*, as it grows much on cultivated lands, but it is also found on field borders and other waste places, where it sometimes attains a great size.

3. **Common Annual Sow-thistle** (*S. oleráceus*).—Leaves undivided or pinnatifid, toothed, clasping, with two spreading arrow-shaped ears, lower ones stalked; stem branched; fruit ribbed lengthwise and wrinkled; heads of flowers somewhat umbellate; involucres smooth; root annual. This plant is well known to the cultivator of a garden, for it is a frequent intruder on his beds. It has bright glossy, often prickly leaves, their edges in one variety divided, in the other entire, and all, as well as the stem, so full of milky

1 BLUE SOW-THISTLE
Mulgedium alpinum.

2 SOW THISTLE
Sonchus palustris

3 CORN S. T.
S. arvensis

4 COMMON ANNUAL S. T
S. oleraceus

5 SHARP FRINGED ANNUAL S. T
S. asper

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juice, that its name of Milk-thistle is not inappropriate. Many a ramble by field border and sunny bank does the schoolboy take to gather a basket of soft juicy "Milkies" for his rabbit; while the timid wild hare will creep through garden hedge, before its owner has waked up to the dawn, and will there take a breakfast on the Sow-thistle. Horses are not fond of the plant; but it is eaten by sheep and goats, and is so favourite a food with swine, that their preference is indicated not alone by our familiar name, but by that of some other European lands. The Germans call it *Saudistel*, and also *Hasenkohl;* the French term the plant *Le Laiteron;* the Italians, *Sonco;* the Spaniards, *Cerraja;* the Dutch, *Haazenlatuw;* and it is known by the Russian peasant as the *Tschistotel.* It is common not only in Europe, but in some parts of Africa; and Kalm says it grows wild near every farmhouse at the Cape of Good Hope, and is used by the people there in making salves. It has also become a very frequent plant in New Zealand, either this or the Corn species flourishing in abundance, with docks and poppies, among the fields of waving corn —little welcomed by the farmer who is intent on cultivating that fertile soil, though doubtless often, as Colonel Mundy says, reminding the traveller very pleasantly of "weedy, seedy Old England." Remarking on the luxuriant growth of several British weeds, as the docks and chickweeds, which adorn the roadsides, this author says: "I rather think Cook found the Sow-thistle here. At any rate, this humble weed is in New Zealand promoted to an esculent, the Maoris making of it a sort of salad." He adds that it is invaluable to the birds, especially to the parrot tribes, hundreds of which, "of beauteous dyes but odious accents," he saw fluttering and feeding on its filmy tops.

This Sow-thistle has similar properties to the succory and dandelion. Its leaves are much eaten by the peasantry of France and Germany, as salad, and are in many countries of Europe boiled for the table. It is said that, prepared in the way of spinach, they furnish a dish of vegetables superior to any green plant in common use.

4. **Sharp-fringed Annual Sow-thistle** (*S. ásper*).—Leaves undivided or pinnatifid, sharply toothed, clasping, with rounded ears; fruit ribbed lengthwise, smooth; stem branched; heads of flowers somewhat umbellate; involucres smooth; root annual. This plant is probably a variety or sub-species of the common Sow-thistle, which it much resembles in its general appearance. It differs chiefly in having more crisped leaves, and in its fruit being destitute of wrinkles. Its stem is two or three feet high, and its flowers, which expand during the summer months, are yellow. It occurs, also, in gardens, fields, and waste places.

10. Hawk's-beard (*Crépis*).

1. **Smooth Hawk's-beard** (*C. vírens*).—Leaves smooth, pinnatifid, with the lobes pointing backwards, the upper ones narrow, arrow-shaped at the base, and clasping the stem, remotely toothed, and with flat margins; fruit shorter than the pappus, oblong, with smooth ribs; root annual. This plant bears numerous little yellow heads, about half an inch across, from July to September, and is very common on waste ground or the cottage roof. It

varies very much in height, being in some cases but a few inches, in others more than two feet high.

2. **Rough Hawk's-beard** (*C. biénnis*).—Leaves rough, pinnatifid, with the lobes pointing backwards, uppermost lanceolate, clasping and toothed; involucre downy, outer scales very narrow and lax; fruit oblong, with smooth ribs, longer than the pappus; root biennial. This plant is very rare, but it occurs on dry pastures in the mid and eastern counties of England, as well as in the neighbourhood of Aberdeen and Dublin. The flowers are larger than those of the last species, and the pappus which succeeds them is white as snow. The stems are from two to four feet high, and furrowed, and the plant blossoms in June and July.

3. **Small-flowered Hawk's-beard** (*C. púlchra*).—Leaves downy, toothed, those from the root oblong, and tapering into a foot-stalk, the rest arrow-shaped and clasping; panicle spreading; fruit about as long as the pappus, faintly marked with lines. This plant has small yellow flowers on an erect and downy stem. It was said to have been discovered by G. Don, on the Hills of Turin and Pitsandy, near Forfar, but no other botanist has ever found it there.

4. **Succory-leaved Hawk's-beard** (*C. succisæfólia*).—Leaves oblong, blunt, nearly entire and smooth, lower ones narrowing into a foot-stalk, upper ones sessile and somewhat clasping; flower-stalks and involucres glandular and hairy; fruit as long as the pappus, distinctly marked with lines; root perennial. This is a rare plant of mountain woods, found only in Scotland and the north of England: it bears its few and small yellow flowers in July and August.

5. **Marsh Hawk's-beard** (*C. paludósa*).—Leaves smooth, lower ones pinnatifid, with the lobes pointing backwards, tapering into a stalk, upper ones narrow, heart-shaped at the base, and clasping the stem; fruit marked with lines; root perennial. This is not an unfrequent species in damp woods in the northern half of the kingdom, flowering from July to September. Though an undoubted *Crepis*, it has the pappus of a *Hieracium*.

11. Borkhausia (*Borkhaúsia*).

1. **Stinking Borkhausia** (*B. fœtida*).—Leaves hairy, upper ones lanceolate, lower ones pinnatifid, their segments turning backwards; unexpanded heads drooping; involucres hairy and downy; root biennial. This is a rare plant of dry chalky lands from Cambridgeshire and Norfolk to Kent and Sussex. Its name is not undeserved; for although, when at a distance, the plant has a faint odour of bitter almonds, yet, when held in the hand for a minute, the scent is most disgusting. The leaves are milky and very bitter. The stem is spreading, and has long stalks, each bearing a solitary yellow flower head, which is reddish externally.

2. **Smaller Rough Borkhausia** (*B. taraxacifólia*).—Leaves pinnatifid, mostly with their segments pointing backwards, sessile or stalked; heads of flowers erect; involucre bristly and downy, outer scales membranaceous; bracts narrow; root biennial. This is not a common plant, being found in chalky pastures, chiefly south of Yorkshire. The yellow flowers expand in June and July.

1. SMOOTH HAWK BEARD
Crepis virens.

2. ROUGH H.
C. biennis

3. SMALL FLOWERED H.
C. pulchra

4. SUCCORY LEAVED H.
C. succisæfolia.

5. MARSH H.
C. paludosa.

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3. **Bristly Borkhausia** (*B. setosa*).—This plant, found sometimes in clover-fields, has no claim to be considered British. It is a native of Middle and Southern Europe, somewhat similar to *B. taraxacifolia*, but the branched stem is furnished with clasping leaves.

12. Dandelion (*Leóntodon*).

Common Dandelion (*L. taráxacum*).—Leaves all from the root, pinnatifid, with the lobes pointing backwards; flower-stalks hollow, smooth, leafless, and bearing a single head; outer scales of the involucre turning downwards; pappus stalked and white; root perennial. If there are some plants which we value for their rareness, because we have sought them long or fetched them from afar, so there are others which delight us by their very commonness, and which gladden us by their gleaming thousands. Often they recall some touching scene of childhood—of early homes or friends. Such are the daisy and Dandelion, which have these associated charms, independently of that which belongs to their own beauty of form or hue. Many of us would, under similar circumstances, feel as the author of "Our Antipodes" did when in the Botanic Garden of Sydney. "Some of the producers," he says, "evince their fealty to their native land by exhibiting specimens of her weeds, or, more properly, field flowers, strangers to the colony, and difficult to rear in this climate. I found myself adoring a buttercup, idolising a daisy, and ardently coveting the possession of a glorious Dandelion, which, classically labelled '*Leontodon taráxacum*,' occupied one of the high places of the exhibition, and was treated as an illustrious foreigner." A lowly plant it is with us, trodden over by the countryman as he passes through the field, or pressed down by the feet of little gladsome children, on pasture land or sunny bank; a treasure yet to them—a treasure to all who truly love flowers. It scorns no grassy spot as unworthy of its beauty, from church tower or garden wall, to the shadowy woods or the river's brink—to the pebbly beach, or the crevice of the pavement. It is often the earliest flower of the green mead, sending out a stray blossom even in February, and assembling in multitudes by April and May.

> "E'en when old Winter leaves his plashy slough,
> The Dandelions, like to suns, will bloom,
> Beside some bank or hillock creeping low,
> Though each too often meets an early doom."

What a wealth to country children are the Dandelions with their hollow stalks, linked into chains day after day with untiring eagerness, and with the white downy balls,

> "The schoolboy's clock in every town,"

which come as the flowers fall away, and which sometimes whiten the meadow by their profusion, till a strong gust arises and scatters them far and wide! Away they float, each white plume bearing onwards the seed at its base, so beautifully balanced that its motion is most graceful, and its destined place in the soil most surely reached. All who notice the exquisite arrangement of

this downy plume and seed, might learn the pious lesson taught by Martin Tupper:—

> "And doubtless the sailing of a cloud hath Providence to its pilot,
> Doubtless the root of an oak is gnarl'd for a special purpose;
> The foreknown station of a rush is as fixed as the station of a king,
> And chaff from the hand of the winnower steer'd as the stars in their courses."

Besides the uses of the Dandelion to child, bee, and butterfly, besides the pleasant thoughts which it may bring to the philosopher, the Dandelion has various important economic uses. The leaves are grown in some Continental countries, and, after being blanched, are eaten in salads; nor is the bitterness which exists in the green leaf, and which even blanching cannot wholly remove, disagreeable to all palates. The peasants about Göttingen, besides mingling the leaves with their dish of lettuce and sorrel, have long been accustomed to roast the roots as a substitute for coffee; and when on one occasion a swarm of locusts had destroyed the harvest in the Island of Minorca, many of the inhabitants were supported for a time by the roots and foliage of this plant. In some parts of Germany the roots are boiled for the table, and the French eat them, when sliced, in salads. Many writers think that the substitution of this root for coffee is rather advantageous than otherwise. A physician of Edinburgh said of the Dandelion: "It possesses all the fine flavour and exhilarating properties of coffee, without any of its deleterious effects. The plant being of a soporific nature, coffee made from it, when drunk at night, produces a tendency to sleep, instead of exciting wakefulness, and may be safely used as a cheap and wholesome substitute for the Arabian berry, being equal in substance and flavour to the best Mocha coffee." Mrs. Moodie, in her work on Canadian life, remarks that she had read this opinion previously to leaving England; and that one day, observing a large number of Dandelion roots in some land which belonged to their farm, she was reminded of it, and resolved to make the experiment. She therefore carefully washed the roots, without depriving them of the fine brown skin which covers them, and in which the aromatic flavour exists. She observed, while roasting them, that the odour so nearly resembled that of roasted coffee, that it might have been taken for it. When, by this process, the pieces of Dandelion-root had acquired the brownness of coffee, they were ground and prepared in the usual way for the morning meal, and proved very superior to the coffee which she had been able to procure from the stores in the neighbourhood. "For years," adds Mrs. Moodie, "we used no other article; and my Indian friends who frequented the house gladly adopted the root, and made me show them the whole process of manufacturing it into coffee. Experience has taught me that the root of the Dandelion is not so good when applied to this purpose in spring as it is in the fall. I tried it in the spring; but the juice of the plant having contributed to the production of leaves and flowers, was weak, and destitute of the fine bitter flavour of coffee." She adds, that the roots dried in the sun will keep for years, and also that the plant cultivated in trenches may be, by being covered with straw, blanched to a beautiful cream-colour, and will make a salad equal to endive. In many parts of the United States, particularly in new districts where vegetables are scarce, it is used, early in the

1. STINKING BORKHAUSIA.
Borkhausia foetida.

2. SMALL ROUGH B.
B. taraxacifolia.

3. COMMON DANDELION.
Leontodon taraxacum.

Pl. 115.

spring, as a boiled vegetable; and in some of the townships the settlers boil the young leaves and mingle them with hops, and thus produce a good home-brewed beer.

Of the medicinal virtues of the Dandelion there can be no doubt, for it is a good tonic. Whether, as the old writers said, he who was "drawing to a consumption" would find a "wonderful help" from its use, we cannot tell, nor has the distilled water, which they directed to be drunk in pestilential fevers, received any confirmation of its value among modern physicians. It is still, however, recommended for those who have affections of the liver; and many persons who have suffered in health from a long residence in hot climates have experienced great relief by taking its decoction. We have seen the complexion wonderfully improved by dandelion tea; but though its use could not be attended with any danger, yet some knowledge of disease is desirable in the use of any medicine, whether vegetable or mineral.

The Dandelion is a troublesome plant of the pasture, both because of its profusion of seeds, and because every inch of its root-stock forms buds and fibres, and thus constitutes a new plant, while both sheep and cows seem to dislike its foliage. The English name for the plant is a corruption of the French *Dent-de-lion*, and was given because of its leaves, the lobes of which were fancied to resemble the tooth of the lion. It is general in the pastures of Europe, and throughout the temperate and cold regions of the earth. James Russell Lowell's verses to it have probably caused many to examine the flower who had formerly passed it as unworthy of attention.

"Dear common flower that grow'st beside the way,
Fringing the dusty road with harmless gold—
First pledge of blithesome May
Which children pluck, and full of pride uphold,
High-hearted buccaneers, o'erjoy'd that they
An Eldorado in the grass have found,
Which not the rich earth's ample round
May match in wealth—thou art more dear to me
Than all the prouder summer blooms may be.

"Gold such as thine ne'er drew the Spanish prow
Through the primeval hush of Indian seas,
Nor wrinkled the lean brow
Of age to rob the lover's heart of ease;
'Tis the spring's largess which she scatters now
To rich and poor alike with lavish hand,
Though most hearts never understand
To take it at God's value, and pass by
The open'd wealth with unrewarded eye."

13. HAWKWEED (*Hieracium*).

This genus is one of a most perplexing character, our most skilful botanists differing as to the exact number of species which it contains. The species here described are, however, probably all which can be considered as truly indigenous to this country. Many others are either doubtful natives, or are likely to prove varieties of the species enumerated in this list. The student, however, intent on closely investigating the minute characteristics of all the plants of this troublesome genus, will find the Hawkweeds, with all their varieties, and with reference to the synonyms and opinions of various British

and foreign botanists, fully described and stated in Backhouse's "Monograph of the British Hieracia" (1856), "The British Flora" of Sir William Jackson Hooker and Dr. Arnott (1860), and "The Manual of Botany" of Mr. Babington (1881). Hooker and Arnott describe thirty-three species of Hawkweed, and Mr. Babington enumerates thirty species. But Sir J. D. Hooker ("Student's Flora"), assisted by Mr. J. G. Baker, of Kew, has reduced this number to ten, and expresses the belief of nine of these "that there are no characters whereby the nine forms . . . can be more than approximately defined." The eight forms described in this work, though not based upon Hooker and Baker, largely agree with them.

* *Plants producing scions.*

1. **Common Mouse-ear Hawkweed** (*H. pilosélla*)—Leaves oblong or lanceolate, hairy on both sides, white with down beneath; stem single-headed, leafless; scions creeping; leaves entire, hairy; root perennial. This Hawkweed is easily distinguished from all the other native species by its uncut leaves, together with its creeping scions. It is a common and very pretty flower, of a much paler yellow than most of the species, and truly lemon-coloured; the florets of the ray have usually red lines on the outside, and the young unfolded or half-blown flowers look very beautiful in their rich crimson tint. The scions are mostly slender and rooting, lying close to the surface of the soil; and the leaves, often of a greyish-green colour, are paler beneath. The plant grows on sunny banks, dry heaths, and pastures, often studding the short grass of the sea-cliff or that of the garden lawn with its blossoms, which are larger than a shilling-piece, and appear from May to August. The herb was formerly in much repute for its supposed medicinal properties. "The juice thereof taken in wine," says an old writer, "or the decoction drank, helpeth the jaundice, although of long continuance, if drank night and morning;" but the herbalist adds, that all other liquid must be abstained from for some hours after. It appears, too, to be one of the plants used by the alchemists in their preparations; for this author says, "The moon owns this herbe also, and though authors cry out upon alchemists for attempting to fix quicksilver by this herbe and moonwort, a Roman would not have judged a thing by success; if it be fixed at all, it is fixed by lunar influence."

There is another Hawkweed, quite distinct from all other species, but which, though often found on hills and in woods, both in England and Scotland, is not a truly wild plant, having been wafted to these spots from some neighbouring garden. It is the Orange Hawkweed (*H. aurantiácum*). The hairs on the stem and involucre are black at the base, and intermingled with black gland-tipped hairs. These suggested the familiar name of Grim the Collier, by which the species is often called; and it is not improbable that this name alluded to a character in an old play, once very popular in England. The plant blossoms in June and July, and the flower is very handsome, often cultivated in gardens, and varying very much in depth of colour in different situations, some flowers being red or deep orange, or more rarely of a pale yellow colour, with dark-brown styles. The plant is sometimes called by gardeners Golden Mouse-ear. It sends out creeping scions, and the flower-

1 COMMON MOUSE-EAR HAWKWEED.
Hieracium pilosella.

2 ORANGE H.
H. aurantiacum.

3 ALPINE H.
H. alpinum.

4 BLACK HEADED H.
H. nigrescens.

5 PALE H.
H. pallidum.

6 WALL H.
H. murorum.

7 WOOD H.
H. sylvaticum.

Pl. 116.

stalk is one or two feet high. It grows wild in France, Switzerland, Austria, and Silesia.

* * *Plants without scions.*

2. **Alpine Hawkweed** (*H. alpínum*).—Stem leafless or with a few leaves, hairy; leaves hairy, sometimes with glands; lower leaves mostly stalked, upper mostly sessile; flowers one or two, terminal, and drooping before expansion; involucre much but loosely imbricated, and covered with long brownish or grey silky hairs; the scales mostly spreading, flowers drooping before expansion; root perennial. This plant grows on lofty cliffs of our mountainous regions, in North Wales and Westmoreland to Sutherland. Its stem is from four inches to a foot high, sometimes branched; and the large bright yellow flower is to be seen in July and August. The leaves are sometimes oval, and sometimes very long and narrow, tapering at the base; in the latter case they are sometimes six or seven inches in length. A plant very nearly allied to this, and found in similar situations from York to Sutherland, is by some botanists described as the Black-headed Hawkweed (*H. nigréscens*). Its involucre is much darker than that of *H. alpínum*, being covered with numerous black hairs or bristles, often mixed with longer whitish hairs arising from a black base. It was also called *H. pulmonárium* (Lungwort Hawkweed), and believed, though without any reason, to be useful in pulmonary disease.

3. **Wall Hawkweed** (*H. murórum*).—Stem many-flowered, with a single leaf, branched above; root-leaves numerous, stalked, rounded or heart-shaped at the base, somewhat hairy; flower-stalks and involucre with white down, and usually with black hairs; inner scales of the involucre suddenly tapering to a point; root perennial. This is a common species, growing on rocks, walls, and cottage-roofs, and bearing its small yellow flowers in July and August. Its leaves are often purplish at the back; its size is very variable, the stem being from twelve to eighteen inches high, and bearing four or five large yellow heads. The plant described as the Pale Hawkweed (*H. pállidum*) is probably but another form of this species. The heads of flowers do not droop before expansion; the foliage is thinner, and pale beneath; but it is doubtful if these peculiarities are permanent.

4. **Wood Hawkweed** (*H. sylváticum*).—Stem usually with a few leaves, many-flowered, slightly hairy; leaves egg-shaped, somewhat lanceolate, toothed, with the teeth pointing upwards, rather hairy; root-leaves usually tapering into a foot-stalk; stem-leaves either stalked or sessile; flower-stalks somewhat downy, in some cases having black hairs mixed with the down; involucre hoary with down; root perennial. This is one of our commonest Hawkweeds, being found in mountain woods, and on banks and bushy places. It is a very variable plant, both in size and appearance. The stem is from twelve to eighteen inches high, and the large bright yellow flowers appear in August and September. In one variety the leaves are either uniformly green or purplish, or glaucous beneath, the root-leaves remaining till the time of flowering. In a form described by some writers as *H. maculátum*, the leaves are spotted with dark purple blotches, and the root-leaves wither before the flowers expand.

5. **Honey-wort Hawkweed** (*H. cerinthóides*).—Stem with few leaves, hairy, with a corymb of flowers at the top; leaves hairy, those from root oblong-lanceolate, acute, rather glaucous; stem-leaves egg-shaped, more or less clasping the stem, the upper part of the flower-stalks downy with hairs from a black base, mixed with bristles; involucre inflated, clothed with black hairs, mixed with whitish ones from a black base; scales pointed; root perennial. This species has large, almost globose, yellow heads in August, and is found on mountain rocks from Yorkshire to Orkney.

6. **Rough-bordered Hawkweed** (*H. prenanthoides*).—Stem leafy, unbranched, hairy; panicle of flowers somewhat corymbose; leaves toothed or entire, netted and glaucous beneath, lower ones narrowed into an eared clasping leaf-stalk, upper leaves lanceolate, heart-shaped, and clasping; flower-stalks and involucres rough with hairs and black bristles; outer scales few, and much smaller than the inner ones; fruit pale brown, and smooth; root perennial. This is a rare species, with similar range to the last-named; it has numerous small yellow flower-heads in July and August.

7. **Shrubby Broad-leaved Hawkweed** (*H. boréale*).—Stem erect, leafy, rough, or hairy, either panicled or corymbose at top; leaves egg-shaped or lanceolate, upper ones broad, sessile, scarcely clasping, lower ones tapering into a foot-stalk; involucres with blackish scales pressed closely down; fruit slightly rough, and brown or red; root perennial. This is a very variable plant, bearing its yellow flowers in August and September. It is not unfrequent in woods and on banks. A plant with all the leaves narrowed at the base, very nearly allied to this, and probably a variety of it, is found in mountainous districts, and is described by some writers as the Rigid-stemmed Hawkweed (*H rigidum*). This has a smooth, solid stem; and a plant scarcely differing from it, but having a rough, hollow stem, and an involucre which becomes, after flowering, narrowed in the middle, is by some botanists termed *H. tridentátum.*

8. **Narrow-leaved Hawkweed** (*H. umbellátum*).—Stem erect, simple, corymbose, somewhat umbellate at the summit, leafy and rigid; leaves oblong-lanceolate or very narrow, toothed or entire, lower ones narrowed at the base, upper sessile, acute, or rounded at the base; flower-stalks and sometimes involucres downy, but not hairy; scales blunt, with points turning backwards; root perennial. In one variety of this the leaves are all narrowed at the base; in a second, which is found at Dunkerran, County Kerry, in Ireland, the whole plant is much larger, and the leaves broader and egg-shaped at the base. This is not an unfrequent plant in our woods. Its stem is remarkably upright, two or three feet high, unbranched, and having an almost umbellate tuft of large yellow flowers in August and September. It is used in Sweden to dye yarn of a yellow colour. Dr. George Johnston observes: "It is remarkable that in the greater number of these plants some insect deposits its eggs near the summit, by which an oval or globular tumour is produced, and a more complete umbellate appearance given to the flower."

The Hawkweeds were prescribed for various maladies, and esteemed very efficacious against the bites of serpents. The old notion, that by means of these plants the hawks strengthened their vision, probably gave them some

1. HONEY-WORT HAWKWEED.
   Hieracium cerinthoides.
2. ROUGH-BORDERED H.
   H. prenanthoides.
3. SHRUBBY-BROAD-LEAVED H.
   H. boreale.
4. NARROW-LEAVED H.
   H. umbellatum.

importance in days when falconry was practised. The Greeks, apparently from this opinion, gave the Hawkweed the name of *Accipitrina*, and hence the English Hawkweed, as well as the French *Epervière* and *Herbe à Epervier*. The Germans also call it *Habichtskraut;* the Dutch, *Haviksruid;* and the Spaniards and Portuguese term it *Hieracio*. Coles, in his "History of Plants," written in 1657, says: "I shall treat of this plant as appropriated to the eyes"; and Dale tells us that taken inwardly the Hawkweed sharpens the sight, and expels black bile.

14. Nipple-wort (*Lápsana*).

1. **Common Nipple-wort** (*L. communis*).—Leaves stalked, toothed, heart-shaped at the base; stem branched; flower-heads numerous; pappus none; root annual. This is a very common plant in July and August by hedges and roadsides, offering little to attract in its pale yellow heads, which are very small in proportion to the size of the plant. It is generally two or three feet high, with many heads each about the size of a threepenny piece, and leaves of very different forms on different parts of the plant. The upper ones are either entire or simply toothed, the lower ones more or less cut, and having several small lobes running down the leaf-stalks. This plant is sometimes called Swine's-cress, and Succory Dock-cress; and the young spring leaves, which have somewhat the flavour of radishes, are eaten in Turkey among salad herbs. The foliage in a warmer climate loses probably some of its bitterness, as it would hardly be relished in its uncooked state in our country, though in some parts of England it is boiled by the peasantry. It is also used medicinally in villages. The French call it *La Lampsane commune*, and the Germans *Der Rainkohl;* the Spaniards term it *Lampsana;* and the Dutch, *Akkermoes*.

2. **Dwarf Nipple-wort** (*L. pusilla*).—Flower-stalk branched, very thick, and hollow at the upper part; leaves oblong, somewhat egg-shaped, toothed; pappus a short entire leathery border; root annual. This is a rare species, occurring in some cultivated lands in the east of England and Scotland, and having, in July and August, small yellow flowers on leafless stalks, which swell and become hollow upwards. It is seldom more than six inches high. Also known as *Arnoseris pusilla*, and Swine's Succory.

15. Succory (*Cichórium*).

Wild Succory (*C. íntybus*).—Heads of flowers sessile, axillary, in pairs; lower leaves toothed, with their segments pointing backwards, hairy on the back of the vein, upper ones clasping, oblong or lanceolate, entire; stem erect, branched; root perennial. This beautiful plant is frequently to be met with wherever the soil is light, gravelly, or chalky. In the harvest field its tough stems cause much trouble, and it clusters in quantities on field-borders or hedge-banks by the roadside, meriting well its pretty old German name, which signifies keeper of the ways. It is a somewhat ragged, shaggy-looking plant, even when in fullest beauty, for its large flowers, blue as the sky, wither away one by one, and remain attached to the stems while the young buds are yet expanding. The blue star-like head is as large as a dandelion, but not so full of florets, and it grows close to the stem, which is from one

to three feet high. The landscape is just at that season rich with lovely flowers:—

"Bursting like some snow-flake from the emerald hedges
Bindweeds out profusely throw their petals white,
Nightshade flowers with centred gold, and wings of purple edges,
Mix with gay convolvuli, and vetches red and bright:
Blue blooms the Succory, each bud than sapphire brighter,
Purple-spiked wild thyme, in amethystine pride,
Scatters aromatic scents, of bees the sweet inviter,
While topaz-like the agrimony's columns rise beside."

This Succory grows wild, more or less, in all the countries of Europe. In France it is called *Chicorée;* in Germany, *Cichorie;* and in Holland, *Sukerey.* The Italians call it *Cicoria;* the Spaniards, *Achicoria;* the Russians, *Zikorifa.* De Theis remarks upon its name, that Bodæus, Linnæus, and others have derived it from the Greek words, "to come," and "field"; that is to say, a plant which grows wild in the field—or everywhere—but that this etymology is over-strained. It is far more natural, he says, to suppose that the Egyptians, who used this plant in great quantities, would have communicated to the Greeks, along with the manner of preparing it, its Egyptian name, which appears from Forskhal to be *Chicoùryeh.* Pliny observed that the Chicory was a very important plant in Egypt, and it is stated that at the present day this and some very similar plants constitute half the food of the Egyptians. In the same manner, doubtless, the specific names of *Endivia* and *Intybus* are both derived from *Hendibeh,* which is the Arabic name of the plant. It seems probable that the Chicory of Theophrastus, which was used by the ancients, was our Wild Succory, since its names through Europe are but corruptions of the name by which the ancients called it.

The Garden Endive (*Cichórium endívia*) is a nearly allied plant, and some writers think it merely a variety of the common Succory. It is now reared in large quantities by market gardeners, and forms a valuable addition to spring salad. Mr. Curtis considered it a distinct species; and it is to be remarked, that while the common Succory has the same name throughout Europe, this is known by a different one, most of the people of the Continent calling it *Endivie, Endivia,* or *Endibia,* while the French call it *La Scarole.* Mr. Curtis says, "The *Cichórium endívia,* which is an annual or biennial, grows wild in the corn-fields of Spain, together with the *C. intybus:* it is undoubtedly the parent of the cultivated Endive, but it is not so clear which of the two is the plant so celebrated by Horace as constituting part of his simple diet."

We may occasionally see the star-like flowers of our Wild Succory of a clear white hue, and it has been discovered that the blue colour of the petals is changed into a beautiful red by the acid of ants. Mr. Miller, the engraver, told Mr. Curtis that the boys in Germany often amused themselves in producing this change of colour by placing the blossoms in an ant-hill. These flowers were, it seems, formerly considered very beneficial to health, for Parkinson tells us, "The bitterness therof causeth it to be more physicall than the curled endive; therefore the flowers pickled up, as divers other flowers are used to be now a daies, make a delicate sallet at all times when there is occasion to use them." This "pickling" the flowers appears to have

1. COMMON NIPPLE-WORT
   Lapsana communis.
2. DWARF N.
   L. pusilla.
3. WILD SUCCORY.
   Cichorium intybus.
4. COMMON BURDOCK
   Arctium lappa.
5. COMMON SAW WORT
   Serratula tinctoria.
6. ALPINE SAUSSUREA
   Saussurea alpina.

Pl. 118.

been merely mixing them with sugar, and making them into a kind of confection, probably similar to that favourite sweetmeat called violet-plate, so much in fashion in the time of Charles I. An old work, Sir John Elyot's "Castel of Helth," seems to have been a great authority among our forefathers. It was first printed in 1534, and comparatively few as readers were in those days, it was afterwards reprinted no less than nine times. The writer of this work says, "In all colerike fevers the decoction of the herbe Sukorie, or the water thereof, stylled, is right expedient." A writer some years later, commending the Succory as a "fine cleansing jovial plant," recommends the decoction of the leaves, as well as the distilled water and syrup, for a variety of maladies.

This Succory is largely cultivated on the Continent, from Italy to Russia, for the leaves, which are used in salad, and which the French call *Barbe à capuchin.* It is also planted as fodder for cattle, and highly prized for the nutriment which it affords. The root, which is now so extensively used in this kingdom to mingle with coffee, was at first employed either as a substitute for that berry or as a surreptitious adulteration of the coffee commonly sold. Its use has now become very general, and some persons think, that mixed with the Arabian berry it improves its flavour. Dr. Howison considers the Succory root superior in flavour to the exotic berry; and Dr. Duncan, some years since, urged the culture of the plant in this country for this purpose. In some parts of Holland and Germany the prepared root is sold in large quantities, and so generally has it of late years been mingled with the coffee sold in this kingdom, that the Legislature has forbidden its sale, except in cases in which it is clearly stated to be used. Dr. Ure has informed us, that nothing can be easier than the detection of Chicory powder or similar substances in the powdered coffee. He remarks, that ground roasted coffee imparts to cold water merely a pale sherry colour, whereas, when it is adulterated with ground roasted chicory, it communicates to the water a brown colour of greater or less intensity. If glass tubes be set upright, and charged respectively, the first with one grain of pure coffee; another with two of coffee mixed with a little chicory; a third with three grains of coffee mixed with much chicory; and if a small quantity of pure water be poured into each tube, and the vessels be shaken and then set upright again at rest, the solid particles will soon descend, and the clear liquid in the stem of the tubes will show by the varied depths of the tincture the proportions in each of coffee and chicory. The Succory root when intended for salad should be dug up, and placed in earth in a warm dark place, the crowns of the roots alone being exposed. The leaves will shoot out freely during winter, and being thus blanched lose their bitterness, and become fit for salad.

The Succory, or Endive, is believed by many writers to be alluded to among the "bitter herbs" which God commanded to be eaten by the Israelites with the lamb when the Passover was instituted. "They shall eat the flesh in that night, roast with fire, and unleavened bread, and with bitter herbs shall they eat it." It is difficult to ascertain the exact plants intended, but, as Rosenmüller observes, the Endive has the oldest authorities in its favour, as the most ancient Greek Alexandrian translations render the word "endives"; and Dr. Geddes remarks on this, that the Jews of Alexandria, who translated

the Pentateuch, could not be ignorant of what herbs were usually eaten at that season in their day. Five sorts of plants are stated by the Mishna, any one of which might be taken by the Jews on this occasion: the wild lettuce; the endive; a plant which some writers explain to mean the horehound, the young tops of horseradish, or a thistle; another, which is by some called a nettle; and lastly, one which is supposed to be the bitter coriander.

Sub-Order II. THISTLE TRIBE (*Cynarocephalæ*).

16. BURDOCK (*Arctium*).

Common Burdock (*A. lappa*).—Leaves heart-shaped, stalked; heads large, usually corymbose; inner scales of the involucre awl-shaped, with a sharp point, longer than the florets. This form is the *A. majus* of some writers; but a variety occurs in which the heads are much smaller, growing more in the form of a raceme, and the sharply-pointed inner scales of the involucre are shorter than the florets. This is sometimes described as *A. minus*, and regarded as a sub-species. This large biennial plant is known to every one by the conspicuous prickly burs which invest it during autumn, and which are the involucres of its summer flowers. To this bur—this ball of hooked scales, covered more or less with a slight web of cottony down—the plant owes its numerous country names, as Great Bur and Hurbur. Culpepper says, "They are called Personata, and Loppy major, Great Burdock, and Clod-bur; it is so well known, even by the little boys, who pull off the Burs to throw and stick upon one another, that I shall spare to write any description of it." The name *Lappa* is from the Celtic *llap*, a hand, because it catches by its hooks at passing objects; and boys try to catch bats by throwing the burs at these animals. As the hooks cling to the fur or feathers of wild creatures the seeds get shaken out one at a time, and so widely scattered along the hedge and ditch.

The Burdock is a rough-looking plant, having a stem three or four—and occasionally seven—feet high, with leaves around its root larger than those of any native plant, except the butter-bur. The foliage is dull green, and the flowers, which expand in July and August, are purplish-lilac, looking somewhat like thistle-flowers.

The Burdock has an old reputation for curing rheumatism, the large leaves being applied to the painful limb. The roots were formerly preserved with sugar, and eaten fasting, as a remedy in pulmonary affections. Though the remedial virtues of the plant were doubtless overrated by the old herbalists, who prized it for a large number of disorders, yet the Burdock has undoubted medicinal uses. The slightly acrid and bitter seeds have been found serviceable in some cases; and a decoction of the root forms one of those ptisans so commonly recommended by French physicians in pectoral complaints. The plant is still considered by competent judges as of some use, even when outwardly applied, in the healing of wounds. Sir Robert Walpole praised a decoction of the roots as a remedy for gout; and this is considered by several medical botanists, among them Dr. Withering, as equal, if not superior, in properties to sarsaparilla, in rheumatic affections. Few animals will touch the leaves of the Burdock; but the birds which sing their

songs in the summer woods, come in autumn to peck its seeds, and some insects feed on the foliage. The plant really deserves praise as furnishing a wholesome vegetable; and among the many whose young stems are occasionally used as a substitute for asparagus, we know of none so tender as this. The stems should be stripped of their rind just before the time of flowering. The plant is cultivated on this account in some parts of France; while Kalm says, that at Philadelphia the peeled stems are commonly eaten as radishes.

The Burdock is general throughout Europe, in uncultivated spots, in woods, or by the sides of ditches; and it is equally so in Japan, and in many parts of America. The French call the plant *Bardane;* the Germans, *Klette;* the Dutch, *Klissen;* the Italians, *Lappola;* the Spaniards, *Lampazo;* and the Russians, *Lapuschnik.*

17. Saw-wort (*Serrátula*).

Common Saw-wort (*S. tinctória*).—Flowers having their stamens and pistils in separate flower-heads, and sometimes on different plants; leaves entire or pinnatifid, usually with bristly serratures; scales of the involucre either smooth or having on them a cottony down; outer ones close pressed, inner narrow and tinged with purple; root perennial. This plant, which does not grow wild in Scotland, is far from uncommon in England, being found in woods, thickets, and heathy places, sometimes in great profusion. It is a stiff, slender plant, with a stem one or two feet high, and bears, in August, a cluster of small terminal oblong heads of dark purple thistle-like flowers, consisting of florets, which are almost globular, and which, as Purton says, resemble old-fashioned wine-glasses. The genus is called Saw-wort, from the saw-like edges of the leaves of several of the species. Our native plant yields a fine yellow colour, which Linnæus tells us is much used in Sweden in dyeing woollen cloth, and which, when fixed with alum, is both brighter and more permanent than the yellow dye procured from the Dyer's-weed. A good brown colour and an excellent green tint are also formed from it by some other modes of preparation. This species is common in many European countries: it is called *Sarrette* in France, and is the *Färberscharte* of the Germans. The Dutch term it *Zaagblad;* and it is known in Spain as the *Serratula de los tintoreros.* The leaves of a foreign species (*S. amára*) are remarkable for their intense bitterness; and an Indian species is much prized in Hindustan for its medical uses.

18. Saussurea (*Saussúrea*).

Alpine Saussurea (*S. alpína*). — Leaves lanceolate, flat, cottony beneath, upper ones quite entire; root-leaves toothed and stalked; heads few, in a crowded corymb; involucre somewhat cylindrical, shaggy with hairs; scales pressed close, the outer ones shorter; root perennial. This mountain flower serves to commemorate a native of Switzerland, and an eminent botanist, Benedict de Saussure. It grows on the most alpine rocks of Snowdon and the Lake District, is frequent in the Scottish Highlands, and occurs in Donegal. The stem is from eight to twelve inches high; and the purple blossom, which expands in August, is, like most alpine flowers, large

in proportion to its height. Sir J. D. Hooker saw a most curious species of this genus in East Nepal. This was the *S. gossýpium*, which forms great clusters of the softest white wool. It is six inches to a foot high, "seeming," as this botanist remarks, "uniformly clothed with the warmest fur which Nature can devise."

19. Thistle (*Cárduus*).

1. **Musk Thistle** (*C. nútans*).—Leaves forming a wing down the stem, thorny, and deeply cut; heads of flowers terminal, solitary, and drooping; scales of the involucre lanceolate, outer ones spreading; root biennial. The whole of this genus well deserves the name, taken from *ard*, a point; for stem, foliage, and flower-cups, are all studded with sharp points. But the prickly habit of Thistles needs no comment; and all animals, save the donkey, are afraid to approach such well-armed plants. The spines on this species are very strong; and the large, handsome, reddish-purple flowers expand from May to October, diffusing, especially in the evening, a delicious musk-like odour. The stem is two or three feet high, little branched, and grey with cottony down; the flowers, which are too heavy to be shaken by a light summer's wind, wave to and fro before the rougher blasts of autumn.

2. **Welted Thistle** (*C. acanthoides*).—Leaves forming a wing down the stem, lanceolate, pinnatifid, and spinous; heads globose, nearly sessile, solitary or clustered; scales of the involucre narrow, awl-shaped, erect or spreading; root annual or biennial. This is a branched plant; its small heads of purple or rarely white flowers expanding in June and July. Its stem, winged with the thorny leaves, is three or four feet in height. It is very common by our roadsides, and grows on many of our heaths, among

> "The churlish Thistles, scented briars,
> The wind-swept blue-bells on the sunny braes."

The leaves are sometimes smooth beneath, at others cottony. Professor Burnett remarks of it, "Some persons believe that it is the true Scotch Thistle, a plant of which Messrs. Dickson and Gibbs, nurserymen, near Inverness, raised in their grounds, a few years ago, to the astonishing height of eight feet; thus seeming, for a moment, to furnish evidence in favour of Foote's ill-natured and pricking satire, that 'nothing grows to perfection in Scotland but Thistles, and they are raised in hot-beds.'" The Professor considered the handsome Milk Thistle to be the true Scotch Thistle, but botanists are now pretty generally agreed that the Cotton Thistle has far greater pretensions to this distinction. The Welted Thistle is also known as *C. crispus*.

3. **Slender-flowered Thistle** (*C. tenuiflórus*).—Leaves forming a wing down the stem, lanceolate, deeply cut, and spiny, somewhat cottony beneath; heads of flowers cylindrical, nearly sessile, clustered; scales of the involucre erect; root annual or biennial. The stem of this Thistle is from two to four feet high, winged to its very summit with the bases of the prickly leaves. It grows near towns or on sandy places, as dry heaths, but more especially near the sea. It is a very distinctly marked species, and bears small heads of pink

1. MUSK THISTLE
Carduus nutans
2. WELTED T
C. acanthoides.
3. SLENDER FLOWERED T
C. tenuiflorus
4. MILK T
C. marianus.

Pl. 119.

flowers in June and July. The long erect scales of the involucre are a striking feature in this plant. It is also known as *C. pycnocephalus*.

4. **Milk Thistle** (*C. marianus*). — Leaves sessile, clasping, waved, thorny, those of the root pinnatifid; scales of the involucre somewhat leafy, bending backwards, and with thorny edges; root biennial. This very handsome, stately plant, the Virgin Mary's Thistle, is often cultivated in gardens for its beauty, but it is not commonly wild either in England or Scotland; nor is it believed to be indigenous. It grows about Edinburgh, and on the rock of Dumbarton; and tradition tells that it was planted in the latter place by Mary Queen of Scots. The stout and stiff stem is from three to five feet high; and the rich deep-green leaves, veined with clear white, at once distinguish the plant from all others of the Thistle tribe. The flower, which appears in June and July, is large and of a rich purple colour. It is the handsomest of our native Thistles. The young leaves make an excellent salad, and are in some countries considered a great luxury; the tender stalks, laid in water to remove their bitterness, and peeled, are a good vegetable; the scales of the involucre are as good as artichokes; and in early spring the roots may also be boiled for the table. In Apulia, the whole plant is cultivated as fodder for cattle. By some it is made to constitute the genus *Silybum*.

20. Plume Thistle (*Cnicus*).

1. **Spear Plume Thistle** (*C. lanceolatus*).—Heads of flowers large, mostly solitary, stalked, egg-shaped; scales of the involucre thorny, spreading, woolly; stem winged by the thorny leaves, the lobes of which are 2-cleft, root biennial. This is a very common Thistle on waste places and hedges, where grow

> "Insatiate Thistles, tyrants of the plains,
> And lurid hemlock tinged with poisonous stains."

Well may the plant be abundant, for the seeds float on the summer air in such profusion that the fields and lanes, for miles together, are whitened by these downy plumes, which are wafted onwards by the slightest breath of wind, gathering here and there in white masses, as some hedge or wide-spread trunk of a tree impedes their progress. Were it not that the goldfinches and chaffinches rob many of these plumes of the seed when they detach them from the Thistle top, and were it not that the autumnal rain destroys many, the whole land would be full of Plume Thistles. Even as it is, the wind carries off many a feathery seed to a kindly soil, and the farmer finds his fields encumbered with the produce of the neighbouring hedge-bank. It is troublesome on the land by its great size, yet it is not one of the worst of weeds, because, being a biennial plant, it may be extirpated if cut down early, before flowering. Nor is it a useless plant on the landscape. Dr. Withering remarks: "Few plants are more disregarded than this, yet its use is considerable. If a heap of clay be thrown up, nothing would grow upon it for several years, did not the seeds of this plant, wafted by the wind, fix and vegetate thereon. Under shelter of this, other vegetation appears, and the whole soon becomes fertile." The flowers, like those of the artichoke, and of several other Thistles, have the power of curdling milk. Neither sheep nor swine will touch this plant, and the horse and cow are not fond of it. It

is often called Bur Thistle, and resembles the Scottish Thistle in the dull purple hue of its flowers.

The immense number of seeds produced by all the Thistles renders them very troublesome to the farmer, by spreading them with great rapidity over a large extent of soil. Some years since, a Scotsman, who settled in Australia, having the strong feeling of nationality common to his countrymen, took to the land of his adoption the seeds of flowers which grew around his native home. He sowed the Thistle seed, and he was not the only one who had an abundant harvest of its plants. The fertile soil suited the intruder; and ever since, the Australian farmers have had to encounter as much difficulty in eradicating the Thistle as the English or Scotch cultivator of his native soil has. The steppe vegetation of the Pampas, near Buenos Ayres, has been overrun in the same way by introduced plants, and bears a most luxuriant growth of magnificent Thistles. Robert Brown says, that in common with the horses and other domestic animals which, since the first colonization of these countries in the year 1535, have spread themselves widely over the steppes, European plants have also been introduced, and, "having completely supplanted the endemic vegetation over extensive tracts, have given the country, in many districts, from the Plata to the Cordilleras, its present natural character, in the same manner as the Opuntia and Agave tribe have become characteristics of the shores of the Mediterranean. In this region, where at the present time horses of European origin only exist, Darwin has discovered the remains of a fossil indigenous horse of the latest geological period; and exactly in the same way, together with an endemic Thistle, which covers extensive tracts of the Rio de la Plata, has the European Cardoon obtained possession of the soil over much wider districts. This lofty growth of Thistles is, on account of its extreme density, quite impenetrable by man or beast. Darwin is acquainted with no instance of an introduced plant occurring in such enormous quantity; and he found on prolonged land journeys the same growth frequently recurring: he even observed it beyond the Plata, and saw many square miles in Monte Video thickly covered with the same Thistle."

2. **Marsh Plume Thistle** (*C. palústris*).—Stem winged by the leaves, which are pinnatifid, spiny at the edges, and rough with prickles; involucres egg-shaped, clustered; their scales pressed close, and having a sharp point; root biennial. This is remarkable for its leafy clustered heads of flowers, and for being the tallest of all our wild Thistles. It grows on field-borders, especially such as are watered by a stream, or on spots where some ditch stagnates near at hand. In moist soils the plant will sometimes attain the height of ten feet, and even in drier places the stout hollow stem reaches the height of four feet. The flowers expand in July and August; the bracts are purplish-green, the flowers purplish-lilac, sometimes white, and grow on the branches at the summit of the stem. The leaves are very spiny, the spines often tinged with brown; the tender stalks of the leaves may be eaten either raw or boiled.

3. **Creeping Plume Thistle** (*C. arvénsis*).—Leaves spinous; involucre egg-shaped, nearly smooth; its scales broadly lanceolate, closely pressed, terminating in a short spine; root creeping, perennial. In one form the

1 SPEAR PLUME THISTLE
Cnicus lanceolatus

2 MARSH P. T.
C. palustris

3 CREEPING P. T.
C. arvensis

4 WOOLLY HEADED P. T.
C. eriophorus

5 MELANCHOLY P. T.
C. heterophyllus

Pl. 120.

leaves are sessile, pinnatifid, or very wavy; in another they are oblong, broad, and lobed, and run down the stem; and in a third they are flat, entire, or slightly lobed. This Thistle of our field-borders is more frequent than welcome, its creeping perennial root rendering it one of the most difficult to eradicate of all our native species; and its leaves are so prickly, that we might say with Chaucer,—

"For Thistels sharpe of many maners,
Netlis, thornes, and crooked briers;
For moche they distroubled me,
For sore I dradid to harmid be."

It is a handsome plant, about two feet high, its flowers, in July, forming clusters of a light purple colour, and of a sweet musky odour; and it is remarkable for bearing in the axils of its leaves galls, which are said to be powerfully astringent, and to be useful in cases of hæmorrhage. The trouble which this Thistle causes to the agriculturist induced our fathers to call it the Cursed Thistle, and truly it requires no small care and industry to keep it within bounds. It is generally found in dry, loamy soils, seldom occurring in any quantity in sand or gravel. A case was recorded in the *Farmer's Magazine* years ago in which the descending roots of the plant were dug out of a quarry, and were nineteen feet long: nor are the horizontal roots of less amount. Mr. Curtis planted once, in April, about two inches of the root of this Thistle, in his garden. By the following November, it had thrown out stolons all around, several of them being eight feet long, and some sending up leaves five feet from the original root. The whole having been taken up, as it was supposed, and washed, was found to weigh four pounds. But it was not yet eradicated, for next spring it appeared again, nearly about the same spot; and between fifty and sixty young plants appeared from the fragments of the root which had been left in the soil, notwithstanding all the efforts of the gardener to exterminate them. On some ill-cultivated arable lands this Thistle often forms half the produce, when it affords ample employment to weeders, who, supplied with strong gloves and pincers, busy themselves in spring in striving to banish it from the soil. Some English botanists doubt if cows and horses will eat it, but Mr. Loudon remarks on this subject: "Those who know anything of the history of agriculture in Scotland before the introduction of turnips, will recollect that it formed the suppering of housed cattle during five or six weeks of every summer." The ashes of this plant yield a very pure vegetable salt; and another plant of the same genus, *C. oleraceus*, which is said to have been once found wild in Lincolnshire, has fleshy roots like the skirret, that may be boiled for the table. It was found in 1823 in this country, but is not a native plant. It is much eaten by the Russians, who boil the leaves in spring, as the Siberians do both the leaves and roots of various species. This Creeping Thistle is sometimes called Horse Thistle. Like the other kinds, it has an abundance of seeds, and Spenser might have been watching its plumes when he wrote the comparison—

"Els as a Thistle-doune in the ayre doth float,
So vainly shalt thou to and fro be tost;"

but an inspired poet had anticipated the comparison: for Isaiah spoke of "the rolling thing before the whirlwind;" which learned commentators say should be,

"the thistle-down before the whirlwind." Children pick the thistle-plumes for filling cushions; and though it is a tedious process, yet sometimes the thought of making a pillow for some one who is poor or sick helps to perseverance, and the employment may be made to awaken kindness and sympathy, as well as to prompt to active exercise in the open air. The plant has prickly leaves, and merits its name, if Wachter's account of the origin of the word "thistle" be true. The Anglo-Saxon *thistle* he thinks may have been *thyd-sel*, from the verb *thyd-an*, to prick. The Dutch and Germans call the plant *Distel*; and the Danes, *Tidsel*. To-day, in Cornwall, the thistle is called Dysel. In France it is called *Chardon*, and in Italy *Cardo*.

4. **Woolly-headed Plume Thistle** (*C. erióphorus*).—Leaves half clasping, but not forming a wing down the stem, white and cottony beneath, deeply pinnatifid, the lobes two-cleft, the segments pointing alternately upwards and downwards, and each terminated by a strong spine; involucres very large, globose, woolly; the scales with a long spinous point turning downwards; roots biennial. This species is distinguished from the others by the very thick down which clothes the scales of the involucre, and which prevents the seeds from readily dispersing. It grows in waste places on a chalk or limestone soil, but is local in England, and very rare in Scotland. It has purple flowers, as large as those of the Milk Thistle, and its leaves are clothed with white down; but the branched furrowed stem is rarely more than two feet high. It blossoms in July and August.

5. **Melancholy Plume Thistle** (*C. heterophýllus*).—Leaves partly clasping, not forming a wing, lanceolate, soft, undivided or toothed, smooth above, white and downy beneath; heads mostly solitary; involucres egg-shaped, slightly downy; scales pointed and closely pressed; root perennial. This handsome flower has nothing sad in its appearance, for the colour of its blossom is a rich amethyst purple, and its involucres are of a bright though dark-green colour; but it was formerly used by empirics as a medicine in hypochondriasis. It is frequent on the mountainous pastures of the North, and is not uncommon on moist hilly places in many parts of the kingdom. It has a creeping root, and a cottony stem, marked with lines, and about three feet high. It stands almost alone among this thorny tribe, as being a Thistle which one may venture to gather without wounding the fingers.

6. **Tuberous Plume Thistle** (*C. tuberósus*).—Leaves sessile, not forming a wing, lanceolate, deeply pinnatifid, lobed, fringed with minute prickles, hairy above, and either hairy or cottony beneath, lower ones on long stalks; stem without prickles; flowers one, two, or three together; scales of the involucre closely pressed, nearly smooth, pointed, with a spine; root perennial. This is a rare Thistle, found on the Wiltshire Downs, and flowering in July and August. The roots are fleshy knobs, and contain a large quantity of starch-like substance, which is mingled with a bitter, tonic, and nutritious principle; and the powder into which they may be ground is so light in quality, and so very nutritive, that it has been recommended as a good diet for consumptive persons.

7. **Meadow Plume Thistle** (*C. praténsis*).—Leaves mostly from the root, soft; stem-leaves sessile, lanceolate, waved at the margin, fringed with minute prickles, cottony beneath, and somewhat downy above; heads globose,

mostly solitary, terminal, and slightly cottony; scales closely overlapping each other, pointed; root perennial and creeping. This is a small plant, with a cottony stem, from six to eight inches high, bearing one or more purple flowers in July. It occurs in low wet pastures in England, but is rare in Scotland.

8. **Dwarf Plume Thistle, or Stemless Thistle** (*C. acaúlis*).—Stem very short, or scarcely any; leaves all from the root, smooth, lanceolate, somewhat oblong and pinnatifid; lobes somewhat three-cleft, toothed and spinous; heads of flowers mostly solitary; involucre smooth, with closely-pressed, pointed scales; inner scales usually longer than the outer; root perennial. This plant is better named Dwarf and Stemless Thistle, as it sometimes, though rarely, has a stem an inch or more long; but very generally the flower nestles down among the leaves, which spread all around it. This circumstance at once distinguishes this Thistle; and in some parts of the country, where the soil is chalk and gravel, it is a frequent and very troublesome plant, occupying much room on the level plain or sunny slope, and, by preventing the growth of the grass, proving very destructive to the pasture. It is not found north of Yorkshire. The flower is deep reddish-purple, large and handsome. It expands from July to September.

21. Cotton Thistle (*Onopórdum*).

1. **Common Cotton Tihstle** (*O. acánthium*).—Leaves oblong, toothed, spiny, woolly on both sides, and forming a wing down the stem; involucre globose, its scales spreading, and awl-shaped; root biennial. This Thistle has its specific name from the leaves, which are somewhat similar in form to those of the acanthus, the plant which is believed to have furnished the ancients with the design of the elegant leaf used in their architecture. That plant is supposed to be the *Acanthus mollis* of Southern Europe, and is quite distinct from the Thistle tribe. The handsome Cotton Thistle is the one which the Scotsman claims for his badge, and which is often cultivated under the name of the Scotch Thistle. It certainly deserves to be so regarded far better than any other species. Though it occurs as far north as Fife, it is not so common in Scotland as on English soil, where it is one of the most frequent plants of its family, abounding on waste ground, from the towering cliff, where it rears its head among the crevices, down to the lowliest valley or the brambled nook, where grasses, docks, and nettles tangle about it, and where its purple flowers rise above them all, on a stem from four to six feet in height. It has a thorny flower-cup, and thorny leaves; and if legends be true which tell that the invading Dane trod on a Thistle, and by his cry awoke the Scots who were sleeping near, believing in the honour of plighted truce, then this Thistle is well suited to recall the incident, and to bear the old legendary motto. That proud and defiant motto indeed, *Nemo me impune lacessit* ("No one touches me with impunity")—which has jocosely been rendered into homely Scotch by "Ye maunt meddle wi' me"—seems well suited to this thorny Thistle, which none could grasp with impunity. The Scotsman is proud of his emblem; and, indeed, the Thistle is one of the most picturesque of our native flowers, and a flower mentioned in earliest history. True, God sent it as a curse to toiling man—true it may be that

Eve beheld its purple rays through blinding tears—yet with that curse came mercy; and as toil sweetens rest, so those soft amethyst tints give a grace to the thorny plants. The order of knighthood called the Order of the Thistle is said by Nisbet and other Scottish antiquaries to be a very ancient one, and to have been instituted by Achaius, King of the Scots, when he obtained a victory over Athelstan; but this is not apparent from any authentic records, nor does the Thistle appear to have been employed as a royal or national badge before the latter part of the fifteenth century. The first mention of it occurs in the inventory of the effects of King James III., who died A.D. 1488. It also appears on the collar worn by James V., and was subsequently worn by his successors. The insignia borne by the knights of the Order of the Thistle is a gold collar with thistles and sprigs of rue interlaced. A gold medal is also worn, bearing a figure of St. Andrew, with his cross of martyrdom, within a circle containing the national motto. The rue was probably significant of remembrance; and on various works of art we find the Thistle popularly used without the rue, but with the motto beneath it, "Dinna forget." Graham refers to his nation's flower:

> "Proud Thistle, emblem dear to Scotland's sons,
> Begirt with threatening points, strong in defence,
> Unwilling to assault! By thee the arm
> Of England was repell'd: the rash attempt
> Oft did the wounded arm of England rue;
> But fraud prevail'd where force had tried in vain,
> Fraud undermined thy roots, and laid thy head,
> Thy crested head, long sullied in the dust."

Happily, however, these national prejudices and dislikes have passed away, and the Englishman looks on the Thistle in the badge of his country with as much satisfaction as on the rose. Robert Nichols, and many another Scottish poet, has verses in its praise:—

> "May it flourish, its home is our dear native land;
> While there's life in ilk heart, while there's strength in ilk hand;
> Be't by night or by day—be't by sea or by land,
> We'll stand by the auld Scottish Thistle.
>
> "While we hallow the graves of the free and the brave,
> While the land hath a stream, while the sea hath a wave,
> While the bold are the free, and the coward's a slave,
> We'll stand by the auld Scottish Thistle.
>
> "For the love of the maiden, the praise of the free,
> For the blessings that father and mother will gi'e,
> For the hames that are dear both to you and to me,
> We'll stand by the auld Scottish Thistle."

The Scotch Thistle, though peculiar to no soil, seems to flourish best upon gravel. Its somewhat dull purple flowers, which are mostly solitary, though sometimes two or three together, are large, and expand in July and August. The plant was formerly cultivated for its esculent fleshy receptacle, but the culture of the artichoke and of the cardoon has superseded its use. According to Gerarde, the artichoke was introduced into this country in the sixteenth century. The Spaniards call our Scotch Thistle *Al-cachofa* (Wild Artichoke),

1. TUBEROUS PLUME THISTLE.
Cnicus tuberosus.

2. MEADOW P..T.
Cpratensis.

3. DWARF P..T.
C. acaulis.

4. COTTON THISTLE.
Onopordum acanthium.

5. COMMON CARLINE THISTLE.
Carlina vulgaris.

and consider it as a dietetic vegetable. It appears, from some lines in Browne's Pastorals, to have been formerly so regarded here :—

> 'With a right willing hand, she gave me thence
> The stomacke's comforter, the pleasing quince ;
> And, for the chiefest cherisher, she lent
> The royal Thistle's milky nourishment."

The expressed juice, as well as a decoction of the astringent root of this Thistle, has been used in medicine with good effect. The seeds are oily. M. Durand states, as the result of his frequent experiments, that twenty-two pounds of the Thistle-heads yield twelve pounds of seeds, from which three pounds of oil fit for burning may be expressed by the aid of heat.

The following poem was written by H. G. Adams, for this volume :—

THE THISTLE.

"Of a proud and ancient family,
Of a vigorous old stock,
Is the stout and sturdy Thistle,
Which bides the tempest's shock ;
Which, when the wild blast sweeps the hill,
And the torrent ploughs the vale,
Right steadily abideth still,
And never turneth pale,
But saith, 'No elemental power
Against me shall prevail !'

"Would you see the Thistle in its strength,
And view it in its pride,
Go where the summer sunshine steeps
The moor and mountain side.
Go where the hoary ruin nods,
And the grey cairn lifts its head,
And the Gael lays him down to sleep
Upon a heathery bed,
With his nation's emblem at his feet,
And the blue sky overhead.

"To read the Thistle's pedigree,
Your backward glances cast ;
For it stretches far and far away
Into the misty past,
Beyond all ancient history,
To the dawn of earthly time,
Where the golden fruits of Paradise
Gleam in the dewy prime :
Alas, that even there we read
Of human woe and crime !

"Would you ask whence came the Thistle,
And when it first unfurl'd
Its crimson banner on the hills,
Defying all the world ?
It came in with the Conqueror—
But that Conqueror's name was Death.
When man through disobedience fell,
And first knew failing breath ;
Then Thistles grew about his path,
And thorns his feet beneath.

"A blazonment the Thistle hath,
A motto proud it bears,
'*Noli me tangere*' the words—
Touch me the man who dares !
But for all its vaunting, it full oft
Is taken by the beard,
By the horny hand of toil that ne'er
Its family hath fear'd ;
And the ploughshare rends its stalwart frame,
When the fallow lands are clear'd.

"Yet soon again it springeth up,
Displays its crimson crown,
And spreads abroad its progeny
In clouds of seeded down.
They gather here, they gather there,
They root them in the earth ;
Anon rough leaves and prickly stems
O'er all the land have birth,
And they grow and thrive exceedingly,
Careless of drought and dearth.

"Full many a relative hath he,
This plant of old renown—
Some, dwellers in the wilderness,
Some, by the busy town.
The traveller meets them everywhere,
And blesseth God the while,
Who giveth beauty with the curse,
And sanctifieth toil,
And maketh even the dreary waste
Like a fair garden smile."

Various alterations in the nomenclature of the Thistles have occurred; and the Gentle Thistle, Asses' Thistle, Fish Thistle, Cursed Thistle, Cruel Thistle, Friars'-crown, Thistle upon Thistle, and other well-known plants of other days, cannot now be exactly identified. Almost all our common Thistles belong to the genera *Carduus* and *Cnicus*. The receptacle of the

larger kinds, and the young shoots of nearly all the species, may be eaten; and the Romans appear to have used some at table, though the species cannot be ascertained, *Carduus* being among the Romans the common name for the Thistle tribe. "It occurs," says Beckmann, "among those of weeds, and may then be properly translated by the word Thistle. It, however, often signifies an eatable Thistle; for Pliny took occasion to make use of an insipid piece of raillery when he says, that 'Luxury prepared as food for man what would not be eaten by cattle.'" He adds, that we are informed by Pliny and Apicius that the *Carduus* was pickled in vinegar; but it may be the young tops of the Thistle or the artichoke, or even the burdock. "Elsholz," he remarks, in his "Gartenbau," referring to the cardoon, "says, 'The strong stem of the large burr (*Arctium lappa*) may be dressed in the same manner, and is not much different in taste.'" The plague-water, so celebrated a remedy of our ancestors in the seventeenth century, is said by Dr. Millingen to have been composed of masterwort, angelica, peony, butter-bur, viper-grass, Virginian snake-roots, rue, rosemary, balm, carduus, water-germander, marigold, dragon's-blood, goat's-rue, and mint, infused in spirits of wine.

22. Carline Thistle (*Carlina*).

Common Carline Thistle (*C. vulgáris*). — Stem many-flowered, downy; leaves lanceolate, unequally spinous, and deeply toothed, downy beneath; root biennial. Wherever we see this plant, we may feel assured that the soil is barren; and one may bless the great Creator that, barren as it is, some gay flower is yet destined to enliven it, seeming like a gleam of sunshine on a winter's day, or a sudden hope brightening over a brow of care. Many rocky, arid wastes, many dry heaths, or chalky cliffs, or hilly slopes, covered with short grass and bluebells—spots where the lover of wild flowers delights to roam, and on which the memory often lingers—are ornamented by this prickly thistle. Such spots seem particularly associated with the idea of freedom. The landscape stretches far away, and the roaming winds and roving bee seem free as the air which bears them onwards. Scenes like these are just such as the captive in his cell would picture in his longing dreams, and might, as we wander about them, awaken a thought of pity for those who are shut out from all the loveliness of nature.

Those who are not botanists may at once know the Carline Thistle from all others by its pale yellow flower-head, for all our common Thistle blossoms are of some shade of purple. Indeed, even in this Thistle the florets are purple; but they are surrounded by yellow, glossy, chaffy rays, which look like an assemblage of petals, but these are, in fact, the inner scales of the flower-cup, and in winter time, when flower and leaf are alike withered, they glisten on the stem like rays of polished silver. Before expansion, as well as during moist weather, these chaffy scales rise up to protect the inner part of the plant from rain and dew. The flower resembles in texture those garden blossoms which we call Everlastings, and will preserve much of its beauty for months after it is gathered. It grows on a cottony stem, about a foot high, and the involucre and leaves are very rigid and thorny. The flowers expand from July to October, and though not unfrequent in England, are rare in Scotland. Either this or some allied species grows in more or

less abundance in almost all the countries of Europe, and, in sandy situations, in many parts of the world. Linnæus, regarding it as an indication of a barren soil, calls it "a mournful spectacle." It has black, woody, tapering roots, which are said to be eaten when young, but which are certainly, when older, acrid and disagreeable. The receptacle of the flower is, however, a very good vegetable, and is often eaten; while another species of Carline Thistle (*C. acanthifólia*), which grows in abundance on the mountains of Dauphiny, is commonly used there as a substitute for the artichoke. The habit of closing its flowers before rain renders the Carline Thistle a favourite village hygrometer; and both this and another species are hung against the cottage-doors of France, Germany, and Spain, to give reports of coming changes. The French call it *Carline;* the Germans, *Eberwurz;* the Dutch, *Everwortel;* the Italians and Spaniards, *Carlina;* and the Russians, *Kolintschka.*

The bark of our Carline Thistle abounds in a resinous, gummy matter, and the *Carlina gummiféra* has a similar substance in great abundance, both root and flower yielding a gum which hardens into small pieces like gum-mastick. The root of this kind is said to be poisonous. From time immemorial both this and our native species have been used medicinally, and their fleshy receptacles not only eaten as a vegetable, but often preserved as a sweetmeat with honey or sugar. Olivier de Serres says that the Carline Thistle received its name from Charlemagne, whose army was cured of the plague by its use; a story which, improbable as it is, is less so than the introductory circumstance that an angel directed this monarch to the plant. Linnæus ascribes the origin of its name to the circumstance that the army of Charles V., when in Barbary, was cured by it of that dread disease. The plant possesses some tonic and stimulating properties.

23. Knapweed, Bluebottle, and Star Thistle (*Centauréa*).

1. **Brwon-rayed Knapweed** (*C. jácea*).—Leaves egg-shaped and lanceolate, stalked, toothed; involucre pale brown, outer scales few, with appendages deeply jagged in a pinnatifid manner, innermost entire, the rest jagged irregularly; root perennial. This is a very rare species, and is perhaps not truly wild, one specimen only having been found in Sussex, and another in Lanarkshire. It bears purple flowers in August and September, the heads being rayed, and the seeds having no pappus. The plant has, on the Continent, been much used as a febrifuge, and appears to possess some good medicinal properties; several of the species contain, like the Great Yellow Knapweed of Italy (*C. centaurium*), a most powerful bitter principle. This plant is by some botanists thought equal to gentian, and the long-celebrated Blessed Thistle (*C. benedicta*) was formerly considered a most valuable herb. It was cultivated by the monks, and is still to be seen in many an English garden. It was thought to cure fevers, the plague, and other pestilential maladies. It is little esteemed now, but Professor Burnett remarks of it: "Although now neglected, its properties are such as to lead to the belief that it has been superseded by other not more efficacious remedies, its chief fault being the ease with which it may be obtained; for with too many persons the difficulty of procuring, the distance it must be fetched, or the exorbitant

price, are considered to be the essential pre-requisites of a medicine." The French give the name of Blessed Thistle to a plant of another genus. Their *Chardon beni* is the *Carthamus lanatus*.

2. **Black Knapweed** (*C. nigra*).—Involucral appendages erect, egg-shaped, cut like the teeth of a comb, closely and deeply fringed with spreading hair-like teeth, lower leaves deeply toothed, somewhat lyre-shaped, upper ones lanceolate, all rough; pappus an outer row of blunt scales; heads of flowers in one form discoid, in another rayed. A plant called Black-rayed Knapweed (*C. nigréscens*) is described by Mr. Babington as a distinct species, but some writers doubt if it is so. Its general appearance is much like that of *C. nigra*, but it is a stouter and more leafy plant, with a larger flower, which is generally rayed. The involucral appendages are paler, cut like the teeth of a comb, but less deeply than in the common form, about three of the innermost separated from the rest, and exposing the scales; the narrow, thread-like teeth ascending, very short; the pappus wanting; the leaves narrow, lanceolate; the lower ones deeply toothed or somewhat lyrate. This plant is found in some meadows and pastures in the southern counties; it is synonymous with the *C. nigra*, var. *decipiens*, of Hooker's "Student's Flora." Our common Black Knapweed (*C. nigra*) is to be found everywhere, being, from June to August, one of the commonest flowers of our meadows and pastures, growing by roadsides, on field-borders, or sea-cliffs, and having a tough stem one or two feet high. The tint of the purple flowers is somewhat dull, and they are seldom rayed; the scales of the involucre are brown, almost black. It is regarded by the agriculturist as a troublesome intruder on the land, being difficult of extirpation, and seldom touched by cattle either in the green or dried state. A Russian species of this genus is the favourite food of the Crimean sheep, and is supposed to give the beautiful grey to the wool of lambs, so highly prized both in Turkey and Tartary as an ornament to the calpack or cap worn by Tartar gentlemen instead of a turban.

3. **Greater Knapweed** (*C. scabiósa*).—Scales of the involucre closely pressed, with a black finely-toothed margin and paler fringe; leaves somewhat rough, pinnatifid, segments lanceolate, acute; pappus hairy; root perennial. This is a very handsome species, not having dull, compact, purple heads, like those of the Black Knapweed, but the flowers having spreading rays, sometimes forming a circle as large as a crown-piece. The involucre, too, is large and globose, its scales of lighter colour, often cottony, and the whole plant taller and stouter. This plant is often called Hard-heads, and several of the species have the familiar name of Iron-weed. It grows in meadows, cornfields, and on sunny banks, needing not any luxuriance of soil; for on many sea-cliffs it forms, in July and August, magnificent clumps of bright purplish-lilac flowers, and often graces them in November with an occasional blossom. Sometimes these flowers have a sweet though faint odour, which, though not so powerful, resembles that of an allied garden flower, the Sweet Sultan (*C. moschàta*), which our fathers called Honeyflower. Our Knapweed grows on a stem about two or three feet high; the involucres are often as large and almost as hard as a marble. To which of our species the old legend refers as being used by Chiron, it would be hard to say. "The Greater Centaury," says Pliny, "is that famous herb wherewith Chiron the Centaur, as the report goeth, was

1. BROWN RAYED KNAPWEED
Centaurea jacea
2. BLACK DISCOID K
C. nigra
3. GREATER K
C. scabiosa
4. CORN BLUE BOTTLE
C. cyanus
5. JERSEY STAR THISTLE
C. isnardi
6. COMMON S T
C. calcitrapa
7. YELLOW S T
C. solstitialis

Pl. 192.

cured; at what time as having entertained Hercules in his cabin, he would needs be handling and tampering with the weapons of his said guest so long, until one of the arrows light upon his foot, and wounded him dangerously." In some places there grows a larger form, with heads three inches across, whose inner florets are edged with pink, and the outer florets pure white.

4. **Corn Bluebottle** (*C. cyanus*).—Scales of the involucre closely pressed, with a brown-toothed margin; leaves narrow, lanceolate, entire, the lowermost toothed or pinnatifid; pappus downy; root annual. This flower, arrayed in the most brilliant blue tint, waves among the ripening corn from the end of June till the reaper lays it low in August. It is one of our prettiest wild flowers, and has a stem two or three feet high, covered with a cottony down, which also invests the under surface of its leaves.

The poetic fable which tells that the youth Cyanus spent hours in the cornfields, wove its blossoms into garlands, and admired them above all others, accounts for its specific name; and many a country child yet sits by the side of the waving corn, binding this flower into its nosegay. The German ladies often place it in their hair, and they give it many pet names; while the gardener has brought it from the field to the garden-bed, and by his care and skill increased the number of its florets, and sometimes varied their hue. It looks well in the flower-border, though never so pleasing as when growing among the golden ears, with the poppy and scabious for its companions. It is pre-eminently the Cornflower, and either this or some nearly allied species decks the corn-fields throughout Europe. It is known in Germany as the *Kornblume;* in France, as the *Bluet;* in Italy, as the *Ciano;* and it is the *Aciano azuleio* of the Spaniards. It has in this country many pretty and expressive rustic names. Dr. Turner, who wrote in 1564, calls it Blewblawe, as well as Blewbottle; and it is still the Corn Bluebottle of our country people, probably because of the vase-like form of its outer florets. Gerarde calls it also Hurt-sickle; and he tells us that it was often sown in the gardens, and by "cunning looking to doth oftentimes become of other colours, and also double." Dr. Turner also says, "Some herbalists call it *Baptistecula* or *Blaptisecula*, because it hurteth sikles, which were called of olde writers *Seculæ.*" In Scotland it is now termed Blue-bonnet. We have often heard it called Blue-cap in Kent, and the Northamptonshire peasant calls it so.

> "From the first time the Spring's young thrills are born,
> And golden catkins deck the sallow tree,
> Till Summer's Blue-caps blossom mid the corn,
> And Autumn's ragwort yellows o'er the lee,
> I roam'd the fields about, a happy child,
> And bound my posies up with rushy ties,
> And laugh'd and mutter'd o'er my visions wild,
> Bred in the brain of pleasure's ecstasies."

A very beautiful blue colour, almost equal to ultramarine, may be procured from our Corn-flower, by picking out the central florets, which are of deeper blue, and by pounding them, while quite fresh, in a glass or marble mortar, so as to obtain the juice; a small quantity of alum should then be mixed with it, and it is fit for use. If a paler blue should be required, the outer florets should be taken. It will stain linen of a rich azure tint.

Beautiful as the colour is, it cannot, however, be praised, at least when prepared as we have described, for its permanence. Miniature painters are said to use it; and in the first edition of "English Botany," a separate blossom, figured at the bottom of the plate, was painted with the juice of this Corn-flower, and now remains an evidence of the fugitive nature of the tint thus procured; yet a good ink is said to be made of the petals. The blue tint of the Corn-flower itself, when on its native field, is so rich, that no artificial colour can well represent it. It is sometimes, both in its wild and cultivated state, of a dark purple hue. Several of the species besides this are planted in the flower-garden.

The author has often observed the Bluebottle to be a favourite both of the bee and butterfly; and Professor Rennie remarked this when commenting on the power of smell in insects. "We have observed that butterflies of all species, though far from being voracious feeders, will often dart down from a considerable height upon a flower beneath their track. This struck us more particularly in a narrow garden at Havre-de-Grace, inclosed with stone walls fifteen feet high; for no butterfly, in passing over it, omitted to descend for the purpose of visiting the blossoms of an Alpine Bluebottle (*C. montana*), whose smell, however, to our organs was far from being powerful enough to be perceived at the distance of one foot, much less at fifteen or twenty feet, as it must have been by the butterflies, for we often saw the Painted Lady (*Cynthia cardui*) alight there."

5. **Jersey Knapweed** (*C. paniculata*).—Involucre egg-shaped, its bracts spiny-toothed or fringed with soft spines; stem slender, sharply angled, erect, branched, woolly; branches forming a panicle. Lower leaves divided into pinnate lobes, which are again cut into narrow segments; upper leaves slender, undivided. The heads are nearly an inch long, their purple florets expanding in July. The smooth, silvery-white fruits have a pappus of short, flat bristles. This plant, which is very variable in stature, is a biennial, found only in Jersey.

6. **Jersey Star Thistle** (*C. isnárdi*).—Scales of the involucre with palmate, nearly equal spines; heads of flowers terminal, solitary; pappus of the fruit in several rows; leaves rough, lower ones somewhat lyrate, deeply cut, with ears clasping the stem; upper ones long and slender, coarsely toothed, and narrowed at the base; root perennial. This plant, which bears small purple flowers in July and August, is found, though rarely, in pastures of Jersey and Guernsey. It does not occur in England, Scotland, or Ireland. It is also known as *C. aspera*.

7. **Common Star Thistle** (*C. calcítrapa*).—Scales of the involucre smooth, ending in a long, firm, broad-channelled spine; stem branched, spreading; leaves unequally pinnatifid, toothed, and spiny; stem-leaves slender and undivided; root biennial. This plant is very local, but it is not unfrequent on many gravelly, sandy, or chalky soils in the south of England. The author has often found it in Kent, as on chalky banks on Chatham Hill, and also on the cliffs and shingle of Dover. It is very unlike any other of our wild flowers in the spreading long thorns of its flower-head, which are at first green, but which become afterwards very hard and woody, and as strong and sharp as the thorns on a May-bush, and large enough to attract

the attention of the most casual observer. This appendage to the scales of the involucre procured for the plant its specific name, for it much resembles the implement used in ancient warfare, and called *Caltrop*, which was an iron ball set with iron spikes, and which, being thrown beneath the feet of the horses, cruelly wounded these animals as they pressed onwards.

8. **Yellow Star Thistle** (*C. solstitialis*).—Spines of the upper involucral bracts half an inch long, not channelled; spines of the lower bracts very small. Stem winged, erect, rigid, and branched, each branch terminated by a flower-head. Lower leaves lyre-shaped, upper very slender with entire margins. Plant annual. This plant, which is a native of the Mediterranean region, appears to have been introduced to the South and East of England among seeds of lucern and other fodder plants. It occurs only rarely in the districts indicated, and may be readily known from the other species by its winged stem, a foot or so high, and its yellow florets. The flowers appear from July to September, and are succeeded by copious white pappus.

Sub-Order III. CORYMBIFERÆ.

1. THE TANSY GROUP (*Tubiflorœ*).

24. BUR MARIGOLD (*Bidens*).

1. **Nodding Bur Marigold** (*B. cérnua*).—Leaves sessile, lanceolate, undivided, connate; flowers drooping; bracts longer than the involucre; fruit usually with 3 or 4 bristles; annual. The sides of streams and rivulets are the spots on which we must look for this plant. It is not, however, very ornamental to them, for the large button-like flowers are of a tawny-brown or yellowish-green colour, having at their base a number of leafy bracts. The stem is one or two feet high, and somewhat succulent, as are the large smooth leaves. The oblong fruit terminates in stiff bristles, which are three or four in number, and each of which, as may be clearly seen by a glass, is turned back like the point of an arrow, so as to cling to the wool of an animal, the clothing of man, or any other object with which it may come in contact. Dr. George Johnston, in his "Flora of Berwick," furnishes us with some very interesting comments on this plant. "The following remarks," says this writer, "were communicated to me by Mr. Brown: 'Annual plants, it has been observed, produce in general more seed than perennial, and the reason is obvious. The Bidens is annual, and we might expect it to have the benefit of this provision; for, indeed, the circumstances of its growth seem to call for greater productiveness than is common even among annuals. It is found by the sides of ponds and ditches, and its seeds are thus ever in danger of being blown either to the dry land, or to the deeper parts of the pond. In either case they must perish. On the dry land they are useless, for it is a water plant; and, on the other hand, if blown to the deeper parts, they will sink to the bottom, and never germinate, or germinate in vain. Now, though these seeds are exposed to so many dangers, and though the continuance of the species depends on their preservation, yet is their number by no means great. The flower-heads are small, and never numerous; the seeds large in proportion, and, of course, few are produced by

a single plant. This apparent deficiency is, however, well compensated by a peculiar provision. The seeds are four-cornered, and the corners are furnished with sharp deflexed prickles. Each of these corners is also prolonged into an awn still more thickly set with prickles than the corner itself. Now, the intention of this conformation is obvious. The seed falls with the awns pointing upwards, the prickles come into action, attach themselves to the various plants which float at or near the surface, and becoming fixed, germinate in a favourable situation; for as the deflexed prickles fix to the first object which they meet, the seeds are kept as near as possible to the stations of the old plants, and prevented from being carried either on shore or into places which are too deep. How well the prickles are fitted to perform their office may be gathered from a fact mentioned by Lightfoot, that the seeds of the *Bidens tripartita* have been known sometimes to destroy the *Cyprinus auratus*, or gold-fish, by adhering to their gills or jaws.' So closely do they attach themselves to whatever they come in contact with! May not this structure of theirs save them also from the depredations of birds?"

We are much indebted to botanists who will prosecute investigations of this kind, and point out these skilful contrivances and adjustments. To many a heart these obvious marks of God's care bring cheering thoughts—remembrances that they and their sorrows are not too small or unimportant for His notice. They encourage the heart to rise to God in the small as well as the great events of life; and when this communion between the creature and the Creator is once established, sorrows are consoled and lessened, and understood to be blessings. The calmness and happiness of naturalists are often commented upon; and though it would be folly to affirm that every naturalist is a Christian, any more than that every naturalist is happy, still it will be manifest that the mind accustomed to look from these evidences of design to the great Designer, must gain a conviction of His skill and love which may support and cheer, and produce a calm reliance on His goodness.

The Nodding Bur Marigold is in flower from July to October, and, as one might infer from its acridity, it is not relished by cattle, and when chewed excites salivation. Both this and the next species have been used in dyeing yellow. The French call the plant *Le Bident;* and it is *Der Zweyzalen* of the Germans. It is in Holland termed *Tandzaad;* in Spain and Italy, *Bidente;* and is the *Brönsel* of the Danes.

2. **Trifid Bur Marigold** (*D. tripartita*).—Leaves 3-parted, serrated; heads of flowers nearly erect; bristles of the fruit 2 or 3; annual. This is readily distinguished from the other species by the thrice-parted leaves; the flowers are also smaller, and scarcely drooping. It is in blossom from July to September, on marshy bogs, or by rivers and streams, and possesses a similar acridity to the last species. Both kinds have sometimes a ray of small florets without stamens or pistils.

25. Galinsoga.

Small-flowered Galinsoga (*G. parviflora*).—Leaves egg-shaped, opposite, saw-toothed and fringed. Stem slender, downy, branched, from one to two feet high. Flower-heads small, grouped in cymes, the involucral bracts

LIBRARY OF THE BOMBAY BRANCH OF THE ROYAL ASIATIC SOCIETY.

1. NODDING BUR MARIGOLD
Bidens cernua
2. TRIFID B.
B. tripartita
3. SEA SIDE COTTON WEED
Diotis maritima
4. COMMON TANSY
Tanacetum vulgare

Pl. 123.

with their dry fringed margins, in one row only. All the florets are yellow, the outer ones, of which there are from four to six, rayed. Plant annual. This plant is not British, but in recent years it has become quite naturalized about cultivated fields, chiefly in the counties of London, Middlesex and Surrey, where its flowers may be seen from July to October. It was introduced from Peru, and has taken so kindly to English soil that it has become an absolute pest in some of the market-gardens on the outskirts of London.

26. Cotton-weed (*Diótis*).

Seaside Cotton-weed (*D. marítima*).—Leaves oblong, blunt; heads of flowers small and terminal; perennial. This is a rare plant of the sandy sea-shore, with small white heads thickly set with leaves, and both stem and foliage so covered with down as to look as if they had on them a thin coating of lint; and among this crowd of leaves and the scales of their own cups, the little yellow blossoms are almost hidden. The plant is about a foot high, and is in flower from August to September. Its roots run far into the sand, and its branched stems are very brittle. It is found principally in the east and south-east of England, in some localities growing plentifully. It is slightly bitter and aromatic; a larger species, found in the East Indies (*Diótis candidissima*), is very powerfully so, and is used medicinally.

27. Tansy (*Tanacétum*).

Common Tansy (*T. vulgáre*).—Leaves twice pinnatifid, cut; flowers in a terminal corymb; perennial. The Tansy sometimes grows on field-borders and road-sides, and is often found in great luxuriance on banks by the sea, as at Sandgate, in Kent, or on river-sides, as on the shores of the Avon. Its yellow flowers, during June and July, stand like masses of golden buttons among its dark green, prettily cut foliage. The stem is about two or three feet high, and the whole plant is bitter and aromatic, and useful in medicine. Some persons like its flavour, but to most it is so disagreeable that we wonder not that it was selected for eating at Easter season as a representative of the bitter herbs commanded to be taken with the Paschal lamb. One can well understand how cakes made of this plant, and called Tansies, might have been eaten for the purpose of mortifying the appetite, or intended, by their somewhat tonic properties, to sustain the strength during a season of fasting; but that Tansy puddings should be relished as a pleasant food, and Tansy omelets prized as delicacies, seems strange to the many who dislike the taste of the plant. An allusion in a poem of the seventeenth century proves that the Tansy cake was regarded as a sweetmeat:—

> "At stool-ball, Lucia, let us play,
> For sugar cakes or wine;
> Or for a Tansy let us pay,
> The loss be thine or mine."

It is probable that the flavour of Tansy was more generally liked in former times than in ours. Gerarde says: "In the spring-time are made with the leaves hereof, newly sprung up, and with eggs, cakes or tansies, which be pleasant in taste, and goode for the stomacke. The roote preserved with honey or sugar is an especial thing against the gout, if every day for a certaine space a reasonable quantitie thereof be eaten fasting."

A very good green colouring matter may be extracted from the roots of the common Tansy, which the Finlanders use to dye their clothes. Dr. Withering says, that if meat be rubbed with the Tansy, the flesh-fly will not touch it, but when the meat is afterwards eaten, it will probably require the aid of some strong condiment to remove the flavour left by the plant. Tansy wine is a favourite village medicine for children, and is a good stomachic bitter. In Scotland it is much used as a cure for the gout. The French call the plant *Tanasie;* the Germans, *Reinfahren;* the Dutch, *Reinevaren;* the Italians, *Tanaceti;* the Portuguese, *Tanasia.* Most of these names are corruptions of the word *Athanasia,* which signifies that which cannot perish, but of which the application is not obvious.

One of the prettiest plants in the garden in the month of April is a variety of this herb, called Curled Tansy. Its beauty at that early season is a great addition to the garden border, as its green is of the most lively hue, and no leaf which grows can better deserve the epithet of feathery. In olden times, no garden would have been complete without its clump of Tansy :—

> "And where the marjoram once, and sage, and rue,
> And balm, and mint, with curl'd-leaf parsley grew,
> And double marigolds, and silver thyme,
> And pumpkins 'neath the window climb;
> And where I often, when a child, for hours
> Tried through the pales to get the tempting flowers,
> As lady's laces, everlasting peas,
> True love-lies-bleeding, with the hearts-at-ease,
> And golden rods, and Tansy running high,
> That o'er the pale-tops smiled on passers-by."

28. Wormwood, Southernwood, Mugwort (*Artemisia*).

1. Field Southernwood (*A. campéstris*).—Leaves smooth above, silky beneath, once or twice pinnate, with narrow pointed segments; stems prostrate before flowering; scales of the involucre with a thin white edge; perennial. This is a very rare plant, growing on sandy heaths in Norfolk and Suffolk, bearing yellow flowers in August and September. The involucre is of purplish-brown colour, and the slender flowering stem is one or two feet long.

2. Common Mugwort (*A. vulgáris*). — Leaves pinnatifid, with acute segments, white, with down beneath; heads oblong, somewhat racemed; scales of the involucre woolly; perennial. This plant, which is common on waste places by the road-side, or on pebbly beaches, is easily known from the other species by its dark green leaves, having, beneath, a thick coating of cottony down, in which also the young shoots are quite enveloped. It is, too, destitute of that aromatic odour which distinguishes most plants of this genus. It was in former days placed in baths, and thought to have great effect in relieving the sense of fatigue; and the pilgrim was accustomed to lay its leaves in his shoes, in full faith in its efficacy to strengthen him. Pliny said, "The traveller or wayfaring man that hath the herb tied about him, feeleth no weariness at all; and he can never be hurt by poisonous medicine, by any wild beast, neither by the sun itself." It is no wonder a

1. FIELD SOUTHERNWOOD.
   Artemisia campestris.
2. COMMON MUGWORT.
   A. vulgaris.
3. COMMON WORMWOOD.
   A. absinthium.
4. SEA WORMWOOD.
   A. maritima.
5. BLUISH MUGWORT.
   A. cærulescens.

Pl. 124.

"herb of vertue" like this should have been used for the purpose of incantations, as some lines of Michael Drayton's lead us to infer that it was :—

"There is my moly of much fame,
In magic often used ;
Mugwort and nightshade for the same,
But not by me abused.'

This plant is tonic and stimulating, and is used in some places with hops in brewing, and is said to increase the intoxicating properties of ale. Its chief use, however, is in the down of its leaves, which in former days, when light was usually procured by flint and steel, made good tinder, and which is still employed in some countries in surgical operations. The substance called *Moxa* is made sometimes either of this down, or of that on the *Artemísia sinénsis*, and is in much use among surgeons in the East. It is in Japan prepared by rubbing the dried tops and leaves of this plant between the hands until the fine woody fibres are the only portion left of the leaf.

The Mugwort bears, from July to September, clusters of small yellowish flowers, sometimes tinted with a rich reddish-purple colour. Its stem is often three feet high, and it generally grows in masses. It is readily eaten by cattle and sheep. This species, as well as several others which grow on alpine heights, near to the region of eternal snows, is included by the Swiss under the general name of Genipa. These plants are highly prized by the mountaineers for their medicinal properties, and believed to be a balm for almost every mortal ill.

Referring to our Mugwort, Lupton, in his "Notable Things," says : "It is certainly commonly affirmed, that on Midsummer Eve there is found under the roote of Mugwort a coal which keeps safe from the plague, carbuncle, lightning, and the quartan ague them that bear the same about them ; and Mizaldus, the writer hereof, saith that it is to be found the same day, under the roote of plantaine ; which I know for a truth, for I have found them the same day, under the roote of plantaine, which is especially and chiefly to be found at noon." Several respectable authors of that period held the same notion ; but Paul Barbette, writing in 1675, says, "These authors are deceived, for they are not coales, but old acid rootes, consisting of much volatile salt, and are almost always to be found under Mugwort ; so that it is only a certain superstition that old dead roots ought to be pulled up on the Eve of St. John the Baptist about twelve at night."

3. **Common Wormwood** (*A. absínthium*).—Leaves twice pinnatifid, with bluntish segments, covered with soft silky down ; heads hemispherical, drooping ; perennial. This bushy plant, with its silky stems and leaves, bears its leafy panicle of dull yellow flowers from July to September. The stem is about a foot or a foot and a half high, and the whole plant is bitter and aromatic. It grows in waste places, especially near towns and villages, and is used in various ways as a medicine by country people, though the medical practitioner generally employs the cultivated plant. The upper part of the stem and the unexpanded flowers are the useful portions of the herb. They are bitter, and contain in a great degree the usual aroma of the wormwoods ; the lower part of the plant, though aromatic, possessing little of the

bitter principle. The distilled water of this species, called *Eau d'Absinthe*, is used in Switzerland as a condiment to various kinds of food, and also as a liqueur. It becomes milky when water is mingled with it, and it is a common practice to drink small quantities of this liquid with tokay. The seeds of this wormwood are used by rectifiers of British spirits, and those who suffer the consequences of indulging in too luxurious a diet find its renovating and tonic powers of much service; hence a preparation of the plant known as *Crême d'Absinthe* is in great request among epicures. The plant is also occasionally steeped in wine, a practice which is thought to have been derived from the ancients, who mingled wormwood in their luscious wines or used it before or after drinking them, in order to counteract their effect. The seeds are also employed in Scotland by the distillers of whisky, and the flowers have been sometimes used in making malt liquors. The beverage called purl is said to be also seasoned with wormwood. Pieces of wormwood are often hung up in cottages to drive away insects; and the old lines on the subject may be praised for their useful advice, if not for their elegance :—

> "While wormwood hath seede get a handful or twaine,
> To save against March, to make them refraine;
> Where chamber is sweeped, and Wormwood is throwne,
> No flea for his life dare abide to be knowne."

The Common Southernwood of the garden, which we so seldom see in flower in this country, is the *Artemisia abrotana* of the south of Europe. Its strong odour renders it so obnoxious to insects, that country people often place it in their chests and drawers to keep away moth. Hence the French call the plant *Garde-robe;* and its medical virtues were once thought so valuable, that its specific name is derived from the Greek words signifying preservative of life. *Artemisia dracunculus* is the *Estragon* of the French, the *Dragon* of the German, and the *Tarragon* of the English. Its young shoots form an excellent pickle, and are used to flavour fish sauces and vinegar.

We read in Scripture of the "wormwood and the gall" as types of bitterness of spirit, of anguish or remorse, but none of our British wormwoods are among the wild flowers of Palestine. Three species, however, grow there by the waysides and in fields, as some of ours do, and the Judæan Wormwood (*A. judáica*), which occurs in great plenty in the neighbourhood of Bethlehem, is most likely to be the plant intended by the prophet Jeremiah, when he declared that those who had forsaken the law of the Lord of Hosts, the God of Israel, should be fed with wormwood, and have water of gall to drink. The common Garden Southernwood, which is a small shrub with us, grows to a large size in the Holy Land, bearing its nodding yellow flowers in profusion; and the *Artemisia romana* has been observed by botanists on Mount Tabor, but being neither so general nor so powerfully bitter, is less likely to be the plant which served as a figure for the Scripture writers.

On some parts of the American prairies, as on the Steppes of the Missouri, a species of Wormwood (*A. gnaphaloides*) is most abundant; all other plants are far surpassed in number by this, which is spread nearly over the whole district, and often, together with the prairie grass, covers wide tracts almost exclusively.

4. **Sea Wormwood** (*A. maritima*).—Upper leaves pinnatifid, lower ones twice pinnate, downy on both sides; heads racemed, oblong—in one form the racemes are drooping, in another variety they are erect; perennial. Those who live near the sea or salt rivers, and are accustomed to roam over the salt marshes in the neighbourhood, well know this plant as the one which gives a grey tint to the soil. Sometimes it grows on these places only in patches, but in some salt marshes it extends over a great part of the surface, and sends up an odour so strong and so like that of the garden southernwood, that one cannot mistake its affinity. It is one of the plants which the botanist terms social, because never found growing singly, but always in numbers. Everyone who glances around a meadow, and at the hedges that bound it, or the streams which diversify it, will see that there are plants which always grow in masses, and thus give a peculiar aspect to the vegetation. Some are pre-eminently social, like the grasses of the meadow, or the reeds which border the stream, or the thick bog moss (*Sphágnum palústre*) which forms a turfy carpet among the waters of the soft ground, or that moorland moss, the glaucous dicranum, which in autumn grows in turfy patches on the soil. This social growth of plants generally contributes largely to the beauty of the landscape, though there are cases, as in lands covered with a vast extent of heather, where at some seasons of the year it may produce a monotonous and dreary aspect. It is, however, a circumstance of great importance to the welfare of man, enabling him the more readily to cultivate plants in masses; and the glowing fields of ripening corn in summer, as well as the emerald meads of spring giving their beauty and fertility to the landscape, attest the value of the social growth of plants.

The Sea Wormwood is rare in Scotland, but very general in marshes in England, abounding sometimes on the shores of rivers, as on those of the Medway in Kent. It has greenish flowers from July to September, on a stem about a foot high, whole masses of the plant being of one uniform grey-green hue. A plant called Bluish Sea Wormwood (*A. cæruléscens*), which has hoary leaves, the upper ones undivided, the lower ones lobed, is described as having been found, some years since, near Boston in Lincolnshire, and at Portsmouth; but this was probably only a variety of *A. maritima*. The French call the Wormwood *L'Absinthe;* the Germans, *Wermuth;* the Dutch *Alsem;* the Italians, *Assenzio;* the Russians, *Polin*. In Nepal, Wormwood was brought to Dr. Hooker, to form a couch for his night's repose.

29. Hemp Agrimony (*Eupatórium*).

Common Hemp Agrimony (*E. cannábinum*).—Leaves opposite, slightly stalked, downy, 3—5-cleft, deeply serrated, the middle segment the largest; flowers terminal, in corymbs; perennial. This plant is very common on the borders of rivers, in moist woods, and other damp places; also on sea-cliffs. It is a tall and conspicuous, but not handsome plant, the foliage being of a dull dusty-looking green, and the dense clusters of small flesh-coloured flowers are also of a dingy hue. These appear in July and August, and are very extensively patronised by the butterflies known as Painted Ladies, Red Admirals, and Peacocks, who may be found in suitable localities to swarm upon them. The flowers are succeeded by the tufts of

down which surmount the seeds. The stems are three or four feet high, much branched, and the plant often grows in great numbers among reeds and sedges. It has a slightly aromatic odour, like that of resin, and it is bitter to the taste. It was formerly much used as a medicine, and an old herbalist says it was called *Eupatorium* or *Hepatorium*, because it strengthens the liver; but Pliny deduces its name from Eupator, the King of Pontus. It was also termed Water Hemp. An infusion of this plant is a common medicine among the turf-diggers in Holland in some of those disorders to which their occupation renders them liable; but the plant should not be taken in any form by persons ignorant of disease, as it has very powerful properties. It makes, when infused in wine, a very aromatic medicine, which, mingled with honey, is often prescribed by French physicians for coughs. Some of the species are in other countries very extensively used as remedial agents. *Nya-pana* is the vernacular name of a kind which grows on the banks of the river Amazon, and is much used medicinally by the natives; and the Perfoliate Hemp Agrimony has long had a high reputation in pulmonary affections. A dissertation on the subject was published by an American physician some years since, by which it appeared that the medical properties of the plant reside chiefly in the foliage Another species, called now *Mikania guaco*, was so much praised in South America as an antidote to the bite of poisonous serpents, that it was hoped it would prove useful in cases of hydrophobia, but it does not seem to have realized the expectation.

Our common Hemp Agrimony was formerly said to prevent, and even to cure, the mouldiness of bread, if laid near the loaves. The Agrimony is called in France *L'Eupatorie;* in Germany, *Abkraut;* in Holland, *Boelkenskruid.* It is the *Eupatorie* of the Spaniards and Italians, and the Russians term it *Griwa Kouskaja.*

30. Goldy-locks (*Linosýris*).

Flax-leaved Goldy-locks (*L. vulgáris*).—Leaves narrow, undivided, and smooth; scales of the involucre loosely spreading; perennial. This very rare plant, a native of limestone cliffs, is about a foot or a foot and a half high, with erect unbranched stems, bearing at their summits, from August to September, a few yellow flowers. The leaves are narrow, much like those of the flax, crowded on the stems, and, when handled, emitting a very pleasant aromatic odour. It was formerly called *Chrysócoma,* which name was taken from the Greek, and signifies gold-hair, in allusion to its tufts of yellow flowers. Several of the Continental names, like our English one, have the same meaning. The Germans call it *Das Goldhaar;* the Danes, *Guldhaar;* the Dutch term it *Proukbloem;* the Italians and Spaniards, *Crisocoma;* and the French, *Crisocome.* It is also known to botanists as *Aster linosyris.*

31. Everlasting (*Antennária*).

1. **Mountain Everlasting, or Cat's-foot** (*A. dioica*).—Stamens and pistils on separate plants; barren stems prostrate, flowering stems erect, without branches; root-leaves oblong, gradually tapering at the base, woolly beneath, stem-leaves closely pressed, and very narrow; perennial. One

1 COMMON HEMP AGRIMONY.
Eupatorium cannabinum.

2 FLAX-LEAVED GOLDILOCKS.
Linosyris vulgaris.

3 MOUNTAIN EVERLASTING.
Antennaria dioica.

4 PEARLY EVERLASTING.
A. margaritacea.

form of this plant has its leaves greenish and smooth above, when old; another (var. *hyperborea*) has the leaves woolly on both sides. This species is found very commonly on mountainous heaths. It is a pretty little plant, from three to six inches high, the under sides of the leaves being completely covered with cottony down. The flowers, which appear in July and August, are very pretty; their white or rose-coloured involucres are of a chaffy nature, like that of the garden Everlasting.

2. **Pearly Everlasting** (*A. margaritácea*).—Stems erect, branched above, herbaceous, woolly; leaves slender and pointed, cottony, especially beneath; heads of flowers in level-topped corymbs; stamens and pistils on separate plants; scales of the involucre white and blunt; perennial. This is a much larger species than the last, and is not truly wild, though found in moist meadows in various parts of England and Ireland, as in the neighbourhood of Bocking, in Essex. It has long been commonly cultivated in our gardens, where it is called White Everlasting, and it is a very pretty addition to the winter bouquet, long retaining much of its beauty. Gerarde calls it Cotton-weed, and speaking of an allied species, the Alpine Antennaria, says: "The flower being gathered when it is young, may be kept in such manner as it was gathered, I meane in such freshness and well-liking, by the space of a whole yeare: wherefore our English women have called it Livelong, or Live-for-ever, which name doth aptly answer his effects." Our Pearly Cudweed was also called Chafeweed in Yorkshire, because, according to Dr. Turner, it was useful to cure the chafed skin. It is slightly bitter and mucilaginous, and has been recommended as a demulcent in pectoral complaints. In Wales it is commonly selected as a flower with which to deck the grave. It is common in many parts of North America. Kalm says of it that it grows in astonishing quantities about Pennsylvania upon all uncultivated fields, glades, and hills. Its height, he says, is different according to its soil and situation. Sometimes it is very much branched, and at others very little so. He adds: "It has a strong but agreeable smell. The English call it Life Everlasting; for its flowers, which consist chiefly of dry, shining, silvery leaves, do not change when dried. The English ladies were used to gather great quantities, and to pluck them with the stalks; for they put them into pots, with or without water, among other fine flowers, which they had gathered both in the gardens and the fields, and placed them as an ornament in the rooms. The English ladies are much inclined to have fine flowers all the summer long, in or upon the chimneys, sometimes on a table, or before the windows, either on account of their fine appearance, or for the sake of their sweet scent. The grass above mentioned was one of those they kept in their rooms during winter, because its flowers never altered from what they were when they stood in the ground. Mr. Bartram told me another use of this plant. A decoction of the flowers and stalks is used to bathe any pained or bruised part, or it is rubbed with the plant itself tied up in a bag."

32. Cudweed (*Gnaphálium*).

1. **Jersey Cudweed** (*G. luteo-álbum*).—Stems simple, branched from the base; leaves somewhat clasping, narrow, waved, woolly on both sides, lower ones blunt; heads in crowded leafy corymbs; annual. This species is

found not only in the Channel Islands, but, though rarely, in Norfolk, Suffolk, Sussex, and Cambridgeshire. It has in July and August yellowish and conspicuous flowers, tinged with red. The stem is from three to twelve inches high, prostrate below, and woolly.

2. **Highland Cudweed** (*G. sylváticum*).—Stem simple, nearly erect, downy; heads axillary, in a leafy spike; leaves narrow, lanceolate, and downy; perennial. In the usual form of this species the leaves are nearly smooth above, and the spikes are interrupted; in the sub-species, *G. norvegicum*, the leaves are lanceolate and woolly on both sides. The latter form is rare, and is found chiefly on Scottish mountains; the former is a very common plant in Scottish groves and thickets, as well as in England and Ireland, and, notwithstanding its specific distinction, is not confined to the Highlands. It has spikes of yellow flowers from July to September, the little blossoms being almost hidden by the cottony leaves growing among them. Its height is from three inches to a foot or a foot and a half, and the scales of the involucre are oblong, with a broad brown border. The name of *Gnaphalium*, by which Dioscorides described a plant with soft white leaves that served the purpose of cotton, and which may possibly have been identical with some plant of this genus, is, like the old English names of Dwarf-cotton and Cotton-weed, by no means inappropriate. The French term the Cudweed *Gnaphale;* the Germans, *Ruhrpflanze;* the Dutch, *Droogbloeme;* the Italians and Spaniards, *Gnafalio.* The Cudweeds, as well as the plants of the genus *Antennaria*, are included in the name of Everlasting, because of the durable nature of the chaffy scales of their flowers. Pliny says that the Cudweed was called *Chamæzelon*, signifying low-ground cotton; and that it was sometimes named *Albinum*, from the whiteness of its leaves and stalks. The cotton picked from the foliage was used by the ancients instead of wool, for filling couches and mattresses. The plant sometimes grown in our greenhouses, and called *Gnaphálium oriéntale*, is a native of Africa. Our gardeners term it Everlasting Love, and it is *La fleur immortelle* of the French. None who have ever visited Père la Chaise can have failed to observe the wreaths sold at the entrance of the cemetery for visitors to place on the tombs of those whom they have loved and honoured in life, or whose names are dear because associated with history, poetry, or science. Not a tomb of any note is there unadorned; and some whose names were unknown beyond the little circle of love which their virtues had drawn around them, still live in loving memories, and have the yellow wreaths lying in numbers on the spot where their remains are entombed. Many graves are almost covered with the garlands of Immortelles; and while the fadeless flower may serve as an emblem of love which is not to fade, so, too, the flowers planted on the sod of the "early lost and long deplored" may remind the thoughtful of the perishing nature of youth and beauty, while their renewed bloom may suggest the idea of the resurrection of those loved remains. Such emblems are needed in the cemetery of Père la Chaise; for while the monuments are inscribed with touching laments for the departed, there are few words traced there which point hopefully to the hour of meeting in heaven, which make even the faintest allusion to the rising again of the perishing body. It is thought by many writers that some species of *Gnaphalium* were used by the

1 JERSEY CUDWEED
Gnaphalium luteo album

2 HIGHLAND C
G sylvaticum

3 MARSH C
G uliginosum

4 DWARF C
G supinum

5 NARROW LEAVED FILAGO
Filago gallica

6 LEAST F
F minima

7 COMMON F
F germanica

Pl. 126.

ancients among the flowers with which they decked the images of their gods; and it is not unlikely that the Everlastings were also placed about the tombs, though we know that purple and white flowers were anciently believed to be most acceptable to the dead. In Spain and Portugal these Immortelles are still used to decorate altars and images; but neither there nor in France, nor in the bouquet which often decks the English mantelpiece, are they left to their own natural beauty—the pale yellow flowers being often stained with green, black, or orange colour, and thus becoming strangely artificial in their appearance. In France many families are supported by staining these flowers and making them up into garlands and crosses.

It is not known at what period this African Cudweed first appeared in England. Gerarde says that it was brought hither in a dried state in his day; and it appears from Parkinson that it was well known in England about twenty years after the publication of Gerarde's celebrated Herbal. Gerarde calls it Golden Motherwort, and says of the flowers that "they are on the top of a long stalke, joyned together in tufts of a yellow colour, glittering like golde, in forme resembling the scalie flowers of tansie." He says that "being gathered before they be ripe, they remaine beautiful a long time, as myselfe did see in the handes of Master Wade, one of the Clerkes of hir Majestie's Counsell, which was sent him among other things from Padua, in Italie."

3. **Marsh Cudweed** (*G. uliginósum*).—Stem spreading, much branched, woolly; leaves narrow, lanceolate, and downy; heads in dense tufts, which are shorter than the leaves; annual. This is a common species, inhabiting sandy places, or spots where water has stood. It is a small plant, rarely more than three or four inches high, its stem and foliage white with cottony down. In August and September the heads of flowers grow two or three together, among the crowded leaves: their scales are glossy and chaffy, and yellowish-brown.

4. **Dwarf Cudweed** (*G. supínum*).—Stem prostrate, branching only from the base; flowering stems bearing from one to five flowers; leaves narrow and tufted; perennial. There are two varieties of this plant, in one of which the heads are stalked and rather distant; in the other, they are sessile and close together. The species is abundant on Highland mountains, and is usually about two or three inches high, its flowering stems almost bare of leaves. The yellowish flowers appear in July and August.

33. Filago (*Filágo*).

1. **Narrow-leaved Filago** (*F. gállica*).—Stem erect, forked; leaves narrow and pointed; heads crowded in axillary and terminal tufts, which are shorter than the leaves; involucres broad at the base, the outer scales cottony, with bluntish, smooth points; annual. This plant, which is found, though very rarely, on sandy and gravelly fields, has small oblong heads of flowers in leafy clusters on a slender leafy stem about six inches high. The leaves, which narrow upwards from the base, are upright, and finally turn back. The florets are yellowish. The plant has been found at Berechurch, in Essex, at one or two places in Kent, in Herts, Bucks, and the Channel Islands.

2. **Least Filago** (*F. mínima*).—Stem erect, with forked branches; leaves narrow, lanceolate and pointed, flat, closely pressed; heads conical, in lateral and terminal clusters, longer than the leaves; scales cottony, smooth, and slightly blunt at the point; annual. This is a common species of dry and gravelly places, perhaps not truly distinct from the preceding. The yellowish heads of flowers, which appear from June to September, are very small, and the whole plant is of a greyish colour, and enveloped in cottony down. Its stem is slender, and from two to six inches high.

3. **Common Filago** (*F. germánica*).—Stem erect, usually many-flowered at the summit; leaves downy; heads terminal, and in the axils of the branches, somewhat globose; scales of the involucre cottony, with smooth points; annual. There are several varieties of this plant. One has the heads scarcely angled, the scales of the involucre of yellowish-white, and the leaves oblong or lanceolate. Another has the heads larger, five-angled, the scales purplish towards the tip, the leaves lanceolate, tipped with a spine, grass-green, but with a yellowish down: this is called by some writers *F. apiculata*. Another form, with the heads prominently five-angled, scales yellowish white, leaves of a leaden grey colour, and tapering at the base, is by some botanists termed *F. spathulata*. The Common Filago is a very frequent and singular little plant, having at the top of its cottony stem a globular assemblage of heads, from the base of which arise two or more flower-stalks, which are prolific in the same manner. The old herbalists on this account called this the wicked or impious herb (*Herba impia*), as if the young shoots were undutiful to the parent stem by exalting themselves above it. The plant is about six or eight inches high, and flowers in June and July. It grows on heaths and dry gravelly places, and in some of its forms has a faint odour, resembling that of Tansy.

34. Butter-bur (*Petasites*).

Common Butter-bur (*P. vulgáris*).—Leaves roundish, heart-shaped at the base, unequally toothed, downy beneath; perennial. In tracing the course of some of those streamlets which sparkle among the bright grass of the summer meadow, or in selecting some quiet little nook of beauty by the riverside, which would serve well for the painter, how often have we paused by some spot enriched by the snowy blossoms of the meadow sweet and the purple flowers of the willow herb, where large masses of the leaves of the Butter-bur lying on the water's brink made an admirable foreground to the picture! The young duckling from the pool was perchance sheltering itself beneath the broad canopy which served as a screen from sun or passing shower. Even the willow wren, whose wings, one would imagine, might waft it far enough into the very heart of a wood, sought at such moments the ready shelter of this large broad leaf. As an old herbalist once said of it, the leaf is large enough to form the cover for a small table; and we have seen these green leaves standing on thick stalks a foot long, and very nearly three feet broad. But though the artist would look on their masses with delighted eyes, yet the owner of the pasture land would by no means respond to his pleasure. This plant is the most troublesome of all waterside weeds, its long root creeping far into the soil. It so multiplies the plant in wet

1. COMMON BUTTER BUR
Petasites vulgaris
2. COLTS FOOT
Tussilago farfara
3. CANADA FLEA BANE
Erigeron canadensis
4. BLUE FLEA BANE
E. acris
5. ALPINE FLEA BANE
E. alpinus

meadows, that Mr. Curtis says, a piece of this rootstock, only two inches long, and the thickness of his little finger, was dug up, after being planted eighteen months, when it appeared that many shoots had extended to the length of six feet, and penetrated two feet in depth, while the whole mass weighed eight pounds. The rootstock, which is white, with a thick black skin, abounds in a resinous matter, and has a strong resinous odour, and a bitter and acrid flavour. It was formerly used as a medicine in fevers, and was believed to be so efficacious in the cure of the plague, that one of the old names of the plant was Pestilence-wort. "It is under the dominion of the sun," says an old writer, "and, therefore, a great strengthener of the heart and cheerer of the vital spirits." He adds: "It were well if gentlewomen would keepe this roote preserved, to help their poore neighbours. It is fit the rich should help the poore, for the poore cannot help themselves." The art of preparing and preserving medical herbs seems to have been a common accomplishment of the ladies of the olden times, and it is pleasant to think of our female ancestors as employed in making the old unguents and decoctions derived from plants, and dispensing them among the sufferers; for we know well that these acts would tend to promote kindly and charitable feeling, and that the gift of the medicine would in all probability be accompanied by some word of sympathy, which might heal the wounded spirit, as surely as the herbal medicament should help the bodily ailment.

The stamens and pistils of the Butter-bur usually occur in the flowers of separate plants, and the plant bearing the fertile flowers is generally smaller, and has a less dense spike of blossoms, than the stout sturdy barren flower. The corollas are of pale flesh colour; and they expand during April and May, before the leaves, which begin to unfold just as the feathery down of the seeds is clustering on the flower-stalk, or shortly after that has been wafted away by the winds. The stalk has, at the time of flowering, swelling leaf-stalks, which are either leafless or have a small leaf-like piece. The Swedes place this plant near their beehives, because of its early flowering; but it has the disadvantage of overpowering all herbaceous plants near it. The species so frequent in our gardens and shrubberies, and often called Spring Coltsfoots, are the *Petasites álba* and *P. frágrans* of the botanist. Their fragrant blooms quite scent the vernal air; but the plant has the same tendency as the wild species to extend by its creeping roots over a large space of ground. The odour, which is so delicious in the open air, is too powerful for a room; and the masses of leaves have a good appearance in the shrubbery, but so cover the ground as to exclude all lesser plants. *P. fragrans*, commonly known as Winter Heliotrope, is thoroughly naturalized in many parts of South Cornwall, where extensive patches may be seen growing along green road-sides, as well as up and over the high hedge-banks. It has also obtained a permanent footing beside the Thames between Kew and Richmond.

2. The Daisy Group (*Radiatæ*).

35. Coltsfoot (*Tussilágo*).

Coltsfoot (*T. fárfara*).—Stalk single-flowered, with scales crowded upon it; leaves angular, heart-shaped, toothed, white and cottony beneath;

perennial. This flower, which is one of the earliest blossoms of spring, is somewhat like the dandelion in form and colour, but much smaller, and standing up alone on the soil, without the leaf to serve as contrast to its bright gold. Bishop Mant has well described it :—

"O'er scaly stem, with cottony down
O'erlaid, its lemon-colour'd crown
Which droop'd unclosed, but now erect,
The Coltsfoot bright develops, deck'd,
Ere yet the impurpled stalk displays
Its dark-green leaves, with countless rays
Round countless tubes alike in dye
Expanded : but, howe'er the eye
Its tint may prize, no fragrant smells
It nourishes in nectar'd cells."

The flowers of the Coltsfoot expand on moist, clayey, and limestone soils, too abundantly, in March and April, and during the latter month the large angular-edged leaves of pale green, with white under surfaces, are just unfolding to view, and lie in masses in the later seasons by field or on road-side. The Coltsfoot is the first plant which vegetates on marl or limestone rubble ; and the banks by many of our railway cuttings are often covered with the flowers long before other plants have found time to flourish there. The clayey soil of the pestilential Maremmas of Tuscany, where scarcely any other herb is to be seen, is sometimes decked for a vast extent with this. It is a most noxious weed on some of our native soils, for every part of the rootstock will produce a plant. Even if a small piece remain buried three or four feet deep, it will soon vegetate, send up a stem to the surface, and spread with singular rapidity. It ought never, on valuable land, to be allowed to produce flowers or expand leaves ; and the best mode of extirpating it is to cut off the crown of the plant in March.

The flowering stem of the Coltsfoot is about five or six inches high, rising directly from the root, and the scale-like bracts with which it is clothed are often of a purplish hue, as are the drooping unexpanded flower-buds. The plant has its name from *tussis*, a cough ; and we trace this origin in several of its continental names. Thus, the Italians call it *Tossalaggine ;* the French, *Tussilage ;* the Spaniards, the *Tusilago.* The Germans term it *Huflattich*, and the Dutch, *Hoefblad.* The plant has, for many centuries, been used medicinally in pulmonary disease ; it is bitter and demulcent, and a decoction is still often used to sooth irritation in the air passages ; while until within the last few years, Coltsfoot lozenges were commonly sold for coughs. The plant has also, even from the days of Dioscorides, been smoked through a reed, to relieve pain ; and the leaves are said to form the basis of the British herb-tobacco. The cottony down has been sometimes used for filling cushions and pillows, and, saturated with saltpetre, formerly served as tinder. The Coltsfoot, though still retaining a place in the Materia Medica, is now little used.

36. Flea-bane (*Erigeron*).

1. Canada Flea-bane (*E. canadénsis*).—Stem much branched, hairy, many-flowered ; leaves narrow, lanceolate, fringed with hairs ; ray of flower shorter than the involucre ; annual. This is not a common plant, though

found on heaths and on gravelly or chalky waste places in several parts of the kingdom. It is, however, a naturalized, and not an indigenous plant, having been first introduced from Canada into gardens near Paris, whence its downy seeds soon found their way all over France, and afterwards to Sicily, Italy, Belgium, Germany, and England. It is a dull-looking plant, with small heads of dingy flowers in July and August; the florets of the disk being of a yellowish, and those of the ray of a whitish hue, more or less tinged with red. The stem is one or two feet high, much branched, and panicled with numerous flowers. The Flea-bane has the repute of driving away insects; but the name refers to some exotic species, which by their strong odour annoy, or by their viscid stems and foliage entangle, the insects approaching them. A very powerfully fetid species, *E. philadelphicum*, is a medicine of some importance in America. Our wild Flea-banes are of little use; but the ashes, both of this and the following species, yield five or six per cent. of vegetable alkali; and the latter plant has some active principles. The French call the Flea-bane *La Vergerette*, and the Germans, *Das Scharfe*. It is in Holland called *Scherp fynstraal*, and in Spain, *Olivardilla*.

2. **Blue Flea-bane** (*E. ácris*).—Stem corymbose, branches alternate; leaves narrow, lanceolate, entire, spreading, lower ones tapering below; ray erect, scarcely longer than the disk; inner pistillate florets threadlike and numerous; biennial. This is a local plant, found on heaths and chalky or gravelly waste places. It produces its small flowers in July and August, the florets of the disk being yellowish, and the slender rays of dull bluish-lilac. The stem is about a foot or a foot and a half high, and the whole plant very rough to the touch. The down which invests the seeds after the plant has flowered is of a dull brownish-yellow colour.

3. **Alpine Flea-bane** (*E. alpínus*).—Stem mostly single-flowered; leaves lanceolate, lower ones tapering at the base; ray spreading, twice as long as the disk; perennial. This is a plant of Highland rocks, and has a stem from three to five inches in height, the flower with a yellow disk and light purple ray, and the involucre hairy.

37. Starwort, Michaelmas Daisy (*Aster*).

Sea Starwort (*A. tripólium*). — Stem smooth, corymbose; leaves narrow, lanceolate, fleshy, smooth; scales of the involucre lanceolate, blunt, membranous, overlapping each other; perennial. During the months of July, August, and September, the Michaelmas Daisy is a common ornament of the dreary salt-marsh adjoining sea or river. Far as eye can see that flat greensward is stretched, little varied either in hue or form by the plants growing upon it. At this season, these lilac flowers, with their golden centres, are very conspicuous, standing up on a hollow, erect, leafy, succulent pale-green stem, one or two feet high. The plant is essentially one of a saline soil, growing sometimes on sea-cliffs, and often on the muddy shore either of the sea or of rivers. It has been found on the banks of the Thames, a little above high water, near Richmond and Kew; and the author once found it on a bank on Strood Hill, in Kent, at a distance of more than a mile from the salt river Medway; but it is not often found so far inland. Dr. Withering says that the succulent leaves and stems of the plant are not

unfrequently gathered and sold for samphire; but the glass-worts (*Salicorniæ*) are more often substituted for that plant than are any other seaside productions. Animals, though usually so fond of the plants of saline soils, dislike the Aster, and neither the cow nor sheep will touch it. Country people call it Blue Daisy, Blue Chamomile, and Michaelmas Daisy; and it is very nearly allied to the lilac and purple flowered plants known under the latter name, which lend their thousands of starry blooms to deck the autumnal flower-garden. The Michaelmas-daisy genus is peculiarly a North American one, the woods and fields of that country producing a great variety of these plants. The Michaelmas Daisy (*Aster tradescántia*) was brought into our gardens in 1633, by John Tradescant, who with his father visited America to procure new flowers for English gardens. The elder of the Tradescants was gardener to King Charles I., and collected one of the finest museums of natural history ever known in this country. The flowers commemorate the name of these useful botanists; and a large number of allied species have been introduced since that period.

Sir Charles Lyell, when travelling in America, along the road to the White Mountains, each side of which had an abundant growth of sweet fern, and of the woolly dropwort, with its spike of purplish flowers, says: "The name of hard-back was given to this latter plant because the stalks turned the edge of the mowers' scythes. There were gold rods, everlastings, and Asters in profusion; one of the Asters being called Frost-blow, because flowering after the first frost." He adds: "By the side of these indigenous plants grew the English self-heal, the mullein, and other flowers, reminding me of a remark of an American botanist, that New England has become the garden of European weeds."

The French call the Aster *L'Astéer;* the Germans, *Sternblume;* the Dutch, *Sterribloem;* the Danes, *Stiernblomst;* the Italians and Spaniards *Aster.* The favourite garden flowers known as China asters belong to another genus, *Callistephus.* The *Aster acris* of the south of Europe, which is sometimes found in our gardens, has powerfully acrid properties, and when bruised the whole plant has the odour of a carrot.

38. Golden Rod (*Solidágo*).

Common Golden Rod (*S. virgaúrea*).—Stem erect, slightly angular; leaves lanceolate, narrowed at both ends, lower ones oval, stalked and serrated; scales of the involucre lanceolate and acute; perennial. A variety of this plant, sometimes termed *S. cámbrica,* is small, and has broader leaves. During the autumnal months, this flower is the favourite resort of the bees. How on a fine October day these insects will hum and hover about its mass of golden flowers, which enliven chalky bank or sea-cliff, or linger in woods or in thickets by the lane! The brightness of the blossom is relieved by the green leaves growing among the clusters; which are, however, far less dense in the wood or hedge than on sunny open places. It grows best on the poorest soils, and is abundant on mountainous places, blossoming from July till October. This Golden Rod has had its praises sung in former years. It was called Wound-weed, and from its healing powers received its scientific name, *Solidago: Solido* or *in solidum ago vulnera,* "I consolidate wounds.

1. SEA STARWORT
Aster tripolium
2. COMMON GOLDEN ROD
Solidago virgaurea
3. COMMON GROUNDSEL
Senecio vulgaris
4. STINKING GROUNDSEL
S. viscosus
5. MOUNTAIN GROUNDSEL
S. sylvaticus

Pl. 128.

"It is," says an old herbalist, "a soveraigne wound-herb, inferior to none, both for inward and outward hurts." It was, during the sixteenth century, procured at great expense from abroad, for medicinal purposes, though it is no longer in use either in this or in continental countries. It doubtless possesses some astringent properties, but these seem to be greater in the *S. odóra* of North America, the foliage of which is deliciously fragrant, combining the odours of the anise and sassafras. When this plant is subjected to distillation, a volatile oil, having the taste and aroma of the plant in a high degree, collects in the receiver; the oil apparently exists in the little dots or glands of the leaves. The effects of the oil are aromatic, pleasant to the taste, and carminative. Gerarde says of our native Golden Rod: "It is extolled above all the herbes for the stopping of blood, and hath in times past been had in greater estimation and regard than in these daies: for within my remembrance I have known the drie herbe which came from beyond the seas, sold in Bucklersburie in London, for half-a-crown an ounce. But since it was found in Hampsteed Woods, even as it were at our towne's end, no man will give half-a-crown for an hundred weight of it; which plainly setteth forth our inconstancie and sudden mutabilitie, esteeming no longer of anything, how precious soever it be, the whilst it is not strange and rare."

Though we have but one British species, yet a large number of Golden Rods are cultivated in our gardens and shrubberies, either under this name or that of Aaron's Rod. They are, with few exceptions, brought from the woods and fields of North America, where this genus abounds. In some European regions, however, our native Golden Rod is very abundant, as in the most southern parts of the Highlands of Norway, where this and the *Molinia cærulea* are the predominating plants of vast tracts of country, and seem almost to displace all others. The European names of our native plant generally allude to its golden blooms: thus the French term it *Verge d'or;* the Germans, *Goldruthe;* the Dutch, *Goudroede;* the Italians, *Verga d'oro;* and the Spaniards, *Vara de oro.* In Russia it is called *Solotoschnik.*

* *Florets of the ray rolled back, or wanting.*

39. GROUNDSEL, RAGWORT, FLEAWORT (*Senécio*).

1. **Common Groundsel** (*S. vulgáris*). — Flowers without rays, in crowded clusters; leaves half-clasping the stem, deeply pinnatifid, and toothed; involucre conical, smooth; annual. Those even who are little familiar with wild flowers, are acquainted with this, for it grows as a weed in every garden, sending its feathered tufts to bear away its seeds far around the spots where it grows. The little singing bird, not alone of gilded cage, but of bush or tree, welcomes it as a refreshing food; and owing to its numerous seeds, it is everywhere abundant. It has been often used for emollient poultices, but its virtues are very questionable. If hot water is poured upon the green leaves it certainly, however, renders the liquid soft and fitted for soothing the skin irritated by winter's cold. The Highland women often wear a piece of its root as an amulet, regarding it as a protection from the "evil eye." The French call the plant *Seneçon;* the Germans,

Kreuzpflanze; the Dutch, *Kruikskruid;* the Spanish, *Hierbe cana;* the Italians, *Senecione;* the Russians, *Krestownik.*

2. **Stinking Groundsel** (*S. viscósus*).—Ray rolled back; leaves pinnatifid, clammy, and hairy; scales of the involucre loose, hairy; stem branching, spreading; annual. This is a somewhat local plant, occurring on chalky or gravelly soils, and bearing dull yellow flowers in July and August. Its stem is one or two feet high, and the species is remarkable for its clammy hairs and most disagreeable odour.

3. **Mountain Groundsel** (*S. sylváticus*).—Ray rolled back, sometimes absent; leaves sessile, pinnatifid, lobed and toothed, often eared at the base; involucre downy, smooth; stem erect, straight; annual. This is a common plant on gravelly places, rendered very distinct from the last by its larger size, as well as by the paler colour of the leaves, which are often quite hoary, though its odour is similarly unpleasant. It bears conical heads of dull yellow flowers, on a stem one or two feet high, from July to September.

* * *Heads with a spreading ray; leaves pinnatifid.*

4. **Inelegant Ragwort** (*S. squálidus*).—Ray spreading; flowers large; leaves smooth, pinnatifid, with distant oblong and toothed segments; involucre smooth, its outer scales few and small; fruit silky; annual. This is a very handsome plant, found on walls and rubbish at Bideford, Devon, and on walls in and about Oxford, Warwick and Cork. It is a very marked species, but is not truly wild, having been introduced from the Continent. The much-branched stem is leafy and smooth, the heads of flowers large, of golden yellow, and few in number, expanding from June to November, and having many scattered awl-shaped bracts just below them.

5. **Hoary Ragwort** (*S. tenuifólius*).—Ray spreading; leaves closely pinnatifid, pale and downy beneath; stem erect, cottony; fruit hairy; perennial. This plant grows, though by no means frequently, on chalky soils, in hedges, and by roadsides. It sends up numerous stems from the same root, all covered with loose, cottony down; its leaves are very regularly divided, their margins slightly rolled back. The stem is about two feet high, and angular. The yellow flowers appear in July and August, and the root creeps far into the soil.

6. **Common Ragwort** (*S. jacobæa*).—Ray spreading; leaves lyre-shaped, twice pinnatifid; segments smooth, toothed; stem erect; fruit of the disk hairy, those of the ray smooth; involucre hemispherical; perennial. Everyone knows the tall plant with its clusters of handsome golden flowers, which, from June to October, gleam on waste places or meadows. The blossoms have both disk and ray of a deep yellow colour; each one in the cluster being larger than a daisy, and the whole standing on a stem two or three feet high, they form a striking feature on the landscape. Notwithstanding its luxuriant beauty, it is a great annoyance to the owner of the pasture land, for it grows on all soils, and is even more abundant in some other countries than in ours. In Kamtschatka it is everywhere one of the most common plants. It has a fleshy root, of a disagreeable odour; and the whole plant has, especially if bruised, an unpleasant scent. Hence, in Scotland, it is commonly known by the name of Stinking Willie. Its stem is

1. INELEGANT RAGWORT
   Senecio squalidus.
2. HOARY R.
   S. tenuiflorus.
3. COMMON R.
   S. jacobæa.
4. MARSH R.
   S. aquaticus.
5. GREAT FEN R.
   S. paludosus.
6. BROAD LEAVED GROUNDSEL
   S. saracenicus.

marked with slight ridges, and a variety of the plant rarely occurs in which the flowers are without rays.

7. **Marsh Ragwort** (*S. aquáticus*).—Ray spreading; leaves lyre-shaped; serrated, smooth, the lowest undivided, and inversely egg-shaped; involucre hemispherical; fruit smooth; perennial. This species is very much like the Common Ragwort, but is plainly distinguished by its less divided leaves. The yellow flowers occur, from July to September, on wet places, and by the margins of rivers; they are larger than those of the last species.

* * * *Heads with a spreading ray; leaves undivided, or nearly so.*

8. **Great Fen Ragwort** (*S. paludósus*).—Leaves sessile, somewhat clasping, lanceolate, sharply serrate, cottony beneath; stem straight, hollow, rather woolly; corymbs terminal; bracts awl-shaped; perennial. This is a very rare plant of fen ditches. Its stem is from four to six feet high, and both flowers and foliage large. Its yellow blossoms expand in June and July, having narrow rays from thirteen to sixteen in number. It is found in Lincolnshire, Norfolk, Cambridgeshire, Suffolk and the Channel Islands.

9. **Broad-leaved Ragwort** (*S. saracénicus*).—Leaves sessile, lanceolate, acute, smooth, irregularly serrate with small teeth; stem straight, solid; corymbs terminal; perennial. The yellow flowers of this species are much smaller than those of the last, but the florets of the ray are far broader, and are about six or seven in number; these are sometimes wanting. The stem is from three to five feet high, and the leaves broad. This plant is an outcast of gardens, which has become naturalized by the sides of rivers, and in other wet places. It is found on some moist meadows of England, Ireland and Scotland, flowering in June and July, but is very local. This plant was esteemed by the Saracens as a vulnerary, hence its specific name; and it was also termed Saracens' Consound, Saracens' Comfrey, *Herba fortis*, and by the Dutch, *Wundkraut*. It was probably introduced by the Crusaders, and cultivated in the monastery gardens, as most of the places in which it is found are near old monastic institutions. It is not often seen in modern gardens, though some handsome species of the genus are cultivated. The double-flowered variety of *S. élegans* is a greenhouse favourite; and a number of the Groundsel family, especially those having rays of various purple hues, are common border flowers. The Groundsels are found of some species or other in every part of the world. Humboldt remarks, that they are very numerous in the upper regions of the Andes, "just below the limits of eternal snow, where the sun has little power, where hurricanes are incessant, and where not a tree is able to rear its head." Gerarde said of the Broad-leaved Ragwort, "It is not inferior to any of the wound-herbes whatsoever, being inwardly ministered, or outwardly applied in oyntments or oyles." He also relates how he cured by its use a gentleman who was "grievously wounded in the lungs, and that, by God's permission, in a short space."

10. **Marsh Fleawort** (*S. palústris*).—Shaggy; stem much branched and corymbose above; leaves broadly half-clasping, lower leaves deeply toothed; fruit smooth; perennial. This plant has, in June and July, erect heads of bright yellow florets, about twenty forming the ray. Its stem is three or

four feet high, thick, hollow, and leafy. It is a very rare plant of fen ditches, chiefly of Norfolk and Cambridgeshire.

11. **Field Fleawort** (*S. campéstris*).—Woolly; stem simple; root-leaves elliptical, narrowed below, nearly entire, those of the stems small, lanceolate; flowers in umbels. This plant bears its yellow flowers in May and June. It grows on chalky downs in the middle and south of England, and a tall variety known as var. *maritima* occurs on some rocks of the seashore at Anglesea. The heads of flowers are erect, from one to six in the cluster; its flowers are often, when near the sea, much larger than on inland specimens.

40. LEOPARD'S-BANE (*Dorónicum*).

1. **Great Leopard's-bane** (*D. pardaliánches*).—Leaves hairy, heart-shaped, toothed, lower ones on long stalks, intermediate, with two broad ears at the base, uppermost clasping the stem; fruit of the disk hairy, of the ray smooth; perennial. This very rare plant is found on damp and hilly pastures among the mountains of Northumberland, at Calton, by Norwich; and it has been found by Mr. Carter in Lord Fitzwilliam's woods, near Peterborough. It occurs in some other places of England, as well as in several of Scotland. It bears its yellow flowers from May to July, those blooming latest overtopping the earlier ones. The stem is two or three feet in height, erect, hollow, hairy, and solitary. The root is tuberous and creeping, and is, as well as that of *D. plantagineum*, believed to possess an acrid poison. The species is said to take its name from the Greek *pardalio*, a leopard, and *agcho*, to strangle, on account of the use made of the plant in destroying wild animals. The French call the plant *Doronie;* the Germans, *Gemsenwurz;* the Dutch, *Wolverley;* the Italians, Spaniards, and Portuguese term it *Doronies.* The plant has acquired a painful interest, for it is said that Conrad Gesner, who, in his zeal for science, made so many experiments on his own person of the properties of plants, shortened his existence by the use of this acrid herb. In the "Historia Plantarum," believed to be written by Boerhaave, it is related that Gesner took some of this plant in the morning fasting, and wrote, two hours afterwards, a letter to a friend, in which he stated himself to be then in good health. Other friends of the naturalist assert that he had not despatched this letter more than an hour before he was taken ill and expired. This excellent botanist has been called the German Pliny; and Boerhaave termed him that "*Monstrum eruditionis.*" Matthiolus, who long advocated the medicinal use of the Leopard's-bane, relinquished his opinions on finding that it killed a dog to which he gave a dose; but many modern botanists doubt if the root is so highly poisonous as it has been represented. The question of its dangerous properties is a very old one. Gerarde says: "But for the proofe of the goodnesse of Doronicum, and the reste of his kinde, knowe also that Lobel writeth of one called John de Vroede, who ate very manie of the rootes at sundry times, and found them very pleasant in taste, and very comfortable; and thus," he says, "I leave all controversies."

The Leopard's-bane is very frequent on the mountainous parts of Switzerland, the Alps, Hungary, Germany, and other parts of Europe, but in this country it is rather a naturalized than a wild plant. Mr. Lightfoot observes,

1. MARSH FLEA WORT
Senecio palustris
2. FIELD FLEA WORT
S. campestris.

3. GREAT LEOPARDS BANE
Doronicum pardalianches.
4. PLANTAIN LEAVED LEOPARDS BANE
D. plantagineum.

Pl. 130.

that in the few places of Scotland in which he saw it, it always grew near houses. It is quite likely to have escaped from cultivation, for as it looks well both in gardens and shrubberies, it is often placed there, and propagates itself very extensively by its spreading roots. It is an old inhabitant of the English garden. Turner, one of our earliest writers on plants, observes of it in 1568—"*Doronicum*, otherwise called *Carnabadium*, groweth not, that I knowe of, in England; and that I remember I never saw it growing but once, and that was in Germanye." He adds, that the roots are well known in the apothecaries' shop, and says, "The Arabian commendeth this herbe very much agaynst diseases of the herte, and holdes that it is goode agaynst poyson and venome." Gerarde, who had the Leopard's-bane in his garden, tells us that it grows wild in the mountains, and also that it is "brought into, and acquainted with, our English gardens."

2. **Plantain-leaved Leopard's-bane** (*D. plantagíneum*).—Leaves toothed, those from the root or naked stalks egg-shaped, or somewhat heart-shaped; stem-leaves sessile, clasping, the lowermost with a winged and eared stalk; perennial. This is also a rare species, found at one or two places in Essex, in the Den of Dupplin, and a few other damp places in England and Scotland. The stem is either simple or branched, two or three feet high; the yellow heads of flowers on long leafless stalks, usually solitary, or if more, the side ones do not, as in the other species, overtop the terminal ones. It flowers in June and July.

41. Elecampane, etc. (*Inula*).

1. **Elecampane** (*I. helénium*).—Leaves clasping, unequally toothed, wrinkled, downy beneath; outer scales of the involucre egg-shaped, downy, leafy, turning backwards; ray twice as long as the disk; fruit quadrangular, smooth; root perennial. This very handsome but rare plant is found occasionally in moist pastures in England and Ireland, but is not wild in Scotland. It has a stout stem, from three to five feet high, with large leaves and bright yellow flowers of the size of small sunflowers. The leaves are bitter and aromatic, and the roots much more so. These contain a white, starch-like powder, termed inulin, a volatile oil, a soft acrid resin, and a bitter extract, and they furnish the celebrated *Vin d'Aulnée* of the French, so largely used in pectoral complaints. This same inulin has, of late years, been found to exist in the tubers of several plants, as in those of the Jerusalem artichoke, the common pellitory of the wall, and the angelica. The root, when dried, becomes in the course of time stronger and sweeter, and has much of the scent and flavour of orris-root. At first taste it is glutinous, but somewhat strong and disagreeable, but it leaves an aromatic and bitter pungent flavour on the tongue. There is no doubt that it is a good pectoral medicine, and it is certainly a useful remedy for the diseases of sheep. The Romans used the roots as an edible vegetable; and that the monks prized them highly, is evident from their old line,

"Enula campana will restore health to the heart;"

Enula campana being its name among the medical writers of those days. It is little used in England, except that it is sometimes employed by druggists

to adulterate ipecacuanha; but it is made into a cordial sweetmeat, which is eaten by people of the East, and considered to have sanatory properties. Elecampane lozenges were, a few years since, sold by druggists in England; and, on the Continent, various preparations of its juices form several favourite carminatives. The leaves, too, bruised and steeped in wine, and mingled with whortleberries, produce a rich blue dye. The plant grows wild in several countries of Europe, and is cultivated in others for flavouring confectionery. The French call it *Inule d'Aulnée;* the Germans, *Alaut;* the Dutch, *Gewoon alaut;* the Italians, *Enula;* and the Russians, *Dewjatschik.* Its name of *helenium* refers to the celebrated Helen, who is said to have had her hands full of these flowers when Paris carried her off. It was once very common in Sweden, but is now less frequent. Dr. A. Griesbach, of Göttingen, remarks: "Many plants have been extirpated by use: this is now gradually taking place with *Gentiána lutea*, in the Alps, and *Inula helenium*, in the north of Sweden. The contact of man with nature exerts no less a modifying influence on the vegetable kingdom than upon the animal creation. The original vegetation of a country must in general, therefore, be regarded as more rich in species; and in this manner, in Sweden and Germany, even under our own eyes, the localities of rare plants are disappearing one after the other."

2. **Ploughman's Spikenard** (*I. conyza*).—Leaves egg-shaped, somewhat lanceolate, serrated, downy, the upper ones entire, lower ones narrowed into a footstalk; stem herbaceous, corymbose; scales of the involucre all narrow, and turning backwards, leafy; ray scarcely longer than the disk; fruit round, slightly hairy; biennial. This plant, though rarely if ever truly wild in Scotland, is very common on waste places south of York and Westmoreland, from the chalky or clayey hedge-bank to the heights of the sea-cliff. It is a large and not a handsome plant, its heads of flowers having a few small florets, those of the ray being something between tubular and strap-shaped, and all dull yellow. The foliage, too, is of a sombre green, and the leaf-like scales of the involucre are frequently of a reddish-brown hue. The stem is about two or three feet high, and the panicles of flowers have leaves growing among them. They appear from July to October. The plant has a slightly aromatic odour—"the Ploughman's Spikenard's spicy smell"—but this is not very perceptible till it is gathered. It possesses, however, a valuable oil, which is used as a sudorific, and which is said to destroy insects; hence the plant is sometimes called Flybane, and by the French, *Herbe aux puces.* It was once much valued in the cure of disease, both here and in France. The French call it also *Conise;* the Germans term it *Dürrwurz;* the Dutch, *Tonderkruid;* and the Spaniards and Italians, *Conizza.* Gerarde says that the "learned herbarists" of Montpellier called it *Baccharis*, believing it to be the plant alluded to by Virgil by that name. An American purple-flowered species emits a strong odour of camphor; and other plants of the genus yield fragrant gums, which might be useful both in medicine and the arts, and several of which have been found to be of great medical use.

3. **Golden Samphire** (*I. crithmoides*).—Leaves linear, fleshy, usually three-toothed at the extremity; scales of the involucre closely pressed, narrow,

1. ELECAMPANE.
Inula helenium.
2. PLOUGHMAN'S SPIKENARD.
I. conyza.
3. GOLDEN SAMPHIRE.
I. crithmoides.
4. COMMON FLEA BANE.
Pulicaria dysenterica.
5. SMALL FLEA BANE.
P. vulgaris.
6. COMMON DAISY.
Bellis perennis.

Pl. 131.

and pointed; ray nearly twice the length of the disk; fruit hairy; perennial. This is a rare species, found on cliffs and salt marshes in the south of England. It is easily distinguished from any other native plant by its fleshy leaves and yellow flowers, which expand in July and August. The stem is about a foot high, a little branched at the summit, with a single flower on each branch. In cases where this plant occurs, it is often used as a pickle; and the young shoots are sometimes even sent to the London markets, and sold as the veritable Samphire, to which, however, it is very inferior, though in its young state bearing some resemblance to it.

4. **Willow-leaved Inula** (*I. salicina*).—Leaves rigid, the upper slender-oblong, eared and stalkless; the lower ones lance-shaped, toothed and fringed; smooth above, somewhat hairy beneath. Heads solitary, an inch and a half across; involucral bracts slender, fringed, the outer row leafy; flowers yellow, with slender rays. Fruit round, smooth, with dirty-white pappus. This perennial species, which occurs throughout Continental Europe, is only known in the British Islands from Lough Dearg, Galway. It has a leafy stem from a foot to a foot and a half high, and it flowers in July and August.

42. Flea-bane (*Pulicária*).

1. **Common Flea-bane** (*P. dysentérica*).—Leaves oblong, heart-shaped or arrow-shaped, and clasping at the base, and, as well as the stem, downy; scales of the involucre bristly; ray twice as long as the disk; fruit angular; outer pappus waved and cup-like; perennial. Few of the streams of England which are gay during summer with bright flowers, are destitute of the golden marigold-like blossoms of this plant. On the moist margins of brooks and rivers, on wet bogs, and even along roadside wastes, it is plentiful from July to September, growing often in large masses: but in Scotland it is a rare flower, nor is it general in Ireland. The stem is one or two feet high, and is conspicuous among the emerald grasses by the contrast of its wrinkled foliage, which is of a dull whitish uniform green colour, and which, when bruised, is said to have the odour of smoke, though to us it seems to have that of soap. Its juice is saline, bitter, and astringent. As its specific name indicates, it was formerly used in the cure of dysentery. It was celebrated by Linnæus as having proved a valuable medicine in the Russian army, and is used occasionally in this country as a tonic. Haller, however, speaks contemptuously of the medical properties of the plant, because, he says, it abounds in earthy matter. Our old writers, who called it Middle Flea-bane, believed that if burnt in any place frequented by insects, these intruders would certainly be expelled; and Forskhal says that the Arabs called it *Rara ejub*, or Job's Tears, from the belief that Job used this plant to cure himself of his painful maladies, during the season of his affliction. Few, if any, animals will eat the herb. Mr. Baxter mentions that Saussure kept a plant of this species for six months in the vacuum of an air-pump, without any apparent effect. It was then placed in the light, but in such a manner as not to receive the sun's direct rays, as it withered if even a small degree of sunshine reached it. It also grew equally well in an atmosphere of nitrogen gas and in an atmosphere of common air, though the former entirely destroys life in most plants.

2. **Small Flea-bane** (*P. vulgáris*).—Leaves lanceolate, wavy, hairy,

narrow at the base, and half clasping the stem; stem hairy, much branched; ray scarcely longer than the disk; fruit angular; annual. This plant is found occasionally in the southern half of England, but not in Scotland or Ireland. Its stem is leafy, from six to twelve inches high, and the small heads of yellow florets expand in July and August. It grows on moist sandy heaths, or on places where water has once stood.

43. Daisy (*Bellis*).

Common Daisy (*B. perennis*).—Stalk single-flowered; leaves inversely egg-shaped, narrowing at the base, the margin having rounded notches; perennial. Who does not love the Daisy, the little red-tipped Daisy, so like Hope and Faith in its constant up-looking; so cheerful in aspect, that, as the poet has said, "it smiles even in times unkind"? To our latest days the Daisy will have a charm, while it can remind us that it was the first flower which we gathered in unlimited abundance; the flower which in childhood we linked into wreaths, when we "prinked our hair with daisies"—the flower on whose clustering numbers we were wont to tread, and shout, "Spring is come, for we can set our foot on nine daisies." God has not scattered the daisies over green meadow or sunny hill, by our wayside or on the graves of our loved ones, that we should pass them unheeded, or crush them beneath our footstep without a thought of their grace. We have but to look into that star of gold and silver, to see what His hands have wrought. That star is full of flowers, each perfect in itself, each so wondrously constructed, that he who has never looked at them through a lens has not yet learned half their wondrous beauty, though even by a glance he may have learned to say with Chaucer—

"Above all flouris in the mede,
Then love I most these flouris white and rede,
Soche that men callen daisies in our towne:
To them I have so great affectioun,
As I sayd erst, when comin is the Maie,
That in my bed there dawith me no daie,
That I n' am up, and walking in the mede,
To see this floure against the sunne spredc,
When it upriseth early by the morrow,
That blissful sight softeneth my sorrow,
So glad am I, when that I have presence
Of it, to doune it all reverence;
As she that is of all floures the floure,
Fulfilled of all *vertue and honoure*;
And evir like *faire and fresh of hewe*,
As wel in *winter as in summer newe*:
This love I evir, and *shall until I die*,
All sweare I not, *of this I woll* not lie,
There loved no wight nothen in this life,
And whanne that it is eve, I renne blithe,
As soone as ever the sunne ginneth west,
To seene this floure, how it will go to rest,
For fear of night, so hateth she darknesse,
Her chere is plainly spred in the brightnesse
Of the sunne, for there it will unclose."

Poets have sung its praises from oldest times, from Chaucer who called it the "eye of day," and Ben Jonson who wrote of "sweet daie's eyes,"

down to the latest poets of our own period; for its beauty and early memories have ever appealed to the heart and imagination. The love which Chaucer entertains for the flower is shared by us yet, for the "delight in little things" has been given as a blessing to thousands of hearts by Him from whom cometh every good gift; and though the mere worldly man may smile at the simple lover of flowers, yet those who have loved them best well know that this very love has come in moments of sorrow to soothe—has served as a recreation to minds which were wearied with earnest toil—has helped to waken thoughts of God as the Friend of the friendless—has whispered truths of heavenly consolation—has raised the heart to prayer. He says elsewhere—

> "That well by reason men callé it maie
> The daisie, or els the eie of the daie."

We might quote Spenser, who, in the "Faerie Queene," speaks of

> "The little dazy that at evening closes;"

or Shakspere, who tells of "daisies pied"; or the well-known and beautiful poems on the Daisy, by Wordsworth; or Burns, who wrote on the "wee, modest, crimson-tipped flower," crushed by the plough; or Montgomery, who has some sweet verses on the

> "Little flower,
> With silver crest and golden eye,
> That welcomes every changing hour
> And weathers every sky."

But, appropriate as they are, they are too numerous for our pages. A few lines from Leyden, however, must not be omitted:

> "Oft have I watch'd thy closing buds at eve,
> Which for the parting sunbeams seem'd to grieve,
> And when gay morning gilt the dew-bright plain,
> Saw them unclasp their folded leaves again;
> Nor he who sung the 'daisy is so sweet,'
> More dearly loved thy pearly form to greet,
> When on his scarf the knight the daisy bound,
> And dames at tourneys shone with daisies crown'd."

This opening of the flower to the sun gained for it a name, which has in our country outlived some of those by which it was also known in earlier times. Parkinson, referring to these flowers, says: "They are usually called in Latin *Bellides*, and in English Daisies. Some call them *Herba Margarita*, and *Primula veris*, as it is likely after the Italian names of *Marguerite*, and *Fior di prima vera gentile*. The French call them *Pasquettes* and *Marguerites*, and the fruitfull sorte, or those that beare small flowers, *Margueritons*. Our English women call them Jackanapes-on-horseback, as they doe marigolds and childing daisis; but the physitians and apothecaries doe in generall calle them, especially the single and fielde kindes, *Consolida minor*." This last name was doubtless given because the Daisy was supposed to heal or consolidate wounds. Some of its old uses also acquired for it the appellation of Bruisewort; and an old and expressive name of the flower is yet retained in Yorkshire, where it is called Bairnwort. The name of Herb Margaret, once so general in this kingdom, though scarcely remembered now, was from the word *margarita*, a pearl. Chaucer calls the flower, also, the "douce Marguerite."

This word was much more in use formerly than now in this country, as we associate it simply with a woman's name; but pearls and daisies were both once very generally called margarets. Thus, in Wiclif's version of the Bible, we have in Matt. viii., "Nyle ye gyve hooly things to houndis, neither caste ye your margarites before swyn."

This flower was by the Monks dedicated to Saint Margaret—a very popular saint in the olden times, her name and legend having been introduced all over Europe by the first Crusaders. She was the type of female innocence and meekness, and is described in the old metrical legends as

"Maid Marguerite that was so meeke and milde."

Mrs. Jameson tells us that in some pictures she wears a wreath of roses round her head. "I have seen one picture," she adds, "only one, in which she wears a garland of daisies, and carries daisies in her hand and lap."

The Daisy very early became connected with several eminent women of the name of Margaret. Margaret of Anjou, during the days of her prosperity, not only wore the Daisy as a device, but saw it embroidered on the silk and velvet robes of the courtiers who surrounded her, and worn by ladies in their hair in her honour; but when sorrow came to the queen, the Daisy flower was rejected as unfit for a courtly ornament. Though Margaret had little of the meekness of which the Daisy is the type, yet her woman's heart was crushed when she saw this neglect, and knew herself to be, too, a blighted flower. Michael Drayton represents the unfortunate queen as saying to the Duke of Suffolk—

"My Daisy flower which erst perfumed the air,
Which for my favour princes once did wear,
Now in the dust lies trodden in the ground,
And with York's garlands every one is crown'd."

In later days these devices, or devizes as they were called, came to be matters of profound study, especially among the learned men of Italy, and the Daisy figured, with the rose, thistle, and other favourite flowers, very largely in the designs. Paul Jovus, who died in 1552, left a learned treatise on the subject, which about thirty years after his decease was translated into English, to aid persons who made an art of arranging flowers and other objects into devices. The title of this book was, "The Worthy Tract of Paul Jovus, conteyning a Discourse of rare Inventions, both Military and Amorous, called Impreſe: whereunto is added a Preface conteyning the Art of composing them, with many other notable Devizes: by Samuel Daniell, late Studente at Oxenforde. 1585." A large number of writers followed on this subject. Even the learned Camden did not disdain to treat of this matter, and in his "Remains concerning Britain" may be found a chapter on Impreses. One of the writers of the sixteenth century, referring to the art of making devices, says, "It is the most compendious, most noble, most pleasing, and most efficacious way of expressing one's self that human art could invent." Henry VII. bore for a device the white and red rose conjoined, or he sometimes wore a hawthorn bush with the crown as it was found on Bosworth field, the Lady Margaret, his mother, wearing the three white daisies growing on a turf. Margaret, the sister of Francis I., wore the Daisy also for her device, and was called by

her brother his Marguerite of Marguerites, his pearl of pearls. James I. wore the thistle and the rose surmounted with a crown; and Camden says of Queen Elizabeth, that she bore so many as would fill a volume. Louis IX. of France took for a device on his ring a Daisy and a lily, in allusion to the name of his queen and to the arms of France, to which he added a sapphire, on which a crucifix was engraved, surrounded with this motto, *Hors cet annuel, pourrions-nous trouver l'amour ?* because, as this monarch said, it was the emblem of all that was dearest to his heart, Religion, France, and his wife.

The French still commonly call the Daisy *Marguerite*, though *La paquerette* is also a familiar name for the flower. In their fields it grows as freely as in ours; but no skill can make the Daisy thrive in lands between the tropics. In Germany, where it spangles the green meads in abundance, it is called *Gänseblume*, in Holland *Madelieven*; the Italians term it *Margheritina*, the Spaniards *Maya*; and the Russians call our lowly flower by the long name of *Barchatnaja Zwietoschka*. It is not common in Greece, hence we have no Greek name for it, but it is well known in Italy; and the Latins named it *Bellis*, some suppose from the adjective *bellus*, pretty, or, according to others, *Bellis à bello*, because fitted to heal the wounds made in war. Pliny tells us that it was in his day commonly applied, with one of the wormwoods, in the form of a cataplasm. Professor Burnett considers that the plant has astringent properties, and hence may not have been altogether useless as a vulnerary. An old English herbalist says, "The greater wild Daisie is a wound-herb of great respect, often used in those drinkes and salves that are for wounds, inward or outward." This remark, however, relates to the large Ox-eye Daisy, but he praises, also, the juice or distilled water of the common Daisy, and says it is fitting to be kept for wounds in oils, ointments, and plaisters, as also in syrup. He tells us that it cures "hurts and bruises that come of falls or blows," and adds that the juice dropped into weak eyes doth much help them; but we should be sorry to recommend the use of so acrid an herb to an organ so delicate. An author, writing in 1696, tells us that they who wish to have pleasant dreams of the loved and absent, should "put dazy roots under their pillow;" and the root, worn about the person, seems also to have been deemed a remedy for some maladies, so that one is reminded of the words of Chaucer—

> "To other woundes, and to broken armes,
> Some hadden salves, and some hadden charmes."

It is said that persons who wish to prevent the growth of their young lap-dogs give them the Daisy roots boiled in milk.

The Daisy is most pretty when its ray is tipped with crimson. This hue is found almost entirely on the plants exposed to the full glare of the sunshine, and seems to disappear altogether when they grow beneath the shade of trees, of the wood or hedgerow. Notwithstanding our partiality for the flower, it must be admitted that it is a troublesome plant to the owner of the green meadow, spreading rapidly by its roots, and at the same time multiplying quickly by seed, while the leaves, pressing closely over the turf, check all other vegetation. The slightly acrid flavour of the Daisy renders it unpleasing to animals feeding on the pasture.

The Double Daisy of the garden is thought to be but a cultivated variety of our meadow flower, and most of the varieties under culture spring originally from this source, though some, like the *Béllis sylváticus* and *B. ánnua*, are introduced from the fields of Southern Europe. The transplantation of our Daisy to a richer soil has changed the florets of the disk into broader petals, and thus given us in the Double Daisy a head of red, white or varied florets, without the yellow centre. In the cottage garden, the deep red or white, or variegated Daisies, still make a very pretty though old-fashioned border to the bed; and varieties differing still further from the original stock are to be seen yet in the Hen-and-Chicken, or Childing Daisy, by which names the proliferous flower is commonly known in rural districts.

44. Ox-eye (*Chrysánthemum*).

1. **Great White Ox-eye** (*C. leucánthemum*).—Leaves oblong, blunt, cut, and pinnatifid at the base, those of the root inversely egg-shaped and stalked; stem erect, and furrowed; scales of the involucre with a narrow membranous margin; annual. Scarcely less ornamental to the meadow land than even the Pearly Daisy are the tall clumps of Ox-eye, or Moon Daisy, as the flower is sometimes called, standing up on their stems one or two feet high. We have seen masses of this plant cultivated in gardens, and attaining there a greater height and size, forming a most beautiful ornament to the flower-bed with the pure white rays round the golden centre. The plant was formerly called Maudlin Daisy; it is abundant in meadows and on waste places, and is a favourite flower with children, who are usually cautioned by careful mothers not to touch the eyes after handling it. The juice is bitter and acrid, and has an old repute of being obnoxious to insects. Professor Lindley remarks: "We are assured by Professor Cautraine that it is a certain remedy against fleas." The Bosnians place the plant in the bed of their domestic animals, and these insects are driven away in a short time. The Ox-eye blossoms in June and July. Miss Strickland refers to it in these lines :—

> "Here gay Chrysanthemums repose
> And when stern tempests lour,
> Their silken fringes gently close
> Against the shower:
> And whirls the blow-ball's new-fledged pride
> In mazy rings on high,
> Whose downy pinions once untied
> Must onward fly."

We are accustomed to apply the name Chrysanthemum almost exclusively to one of the garden species of this genus, the beautiful Chinese Chrysanthemums, which are the glory of the autumnal flower-bed, and which in their turpentine-scented flowers yield us a bouquet long after other blossoms have disappeared. The species *C. sinense* affords innumerable varieties, and forms the great floral delight of the Chinese and Japanese, being largely cultivated in pots by the mandarins. Miller reared this plant in the Chelsea Botanic Garden in 1764; but it seems to have been lost, and it was reintroduced from France in 1795. It was for a long time a very expensive plant, but is now to be seen peeping through many a paling of the cottage garden, and is accessible to every cultivator of flowers.

1. GREAT WHITE OX-EYE
   Chrysanthemum leucanthemum
2. CORN MARIGOLD
   C. segetum
3. COMMON FEVERFEW
   Matricaria parthenium
4. SCENTLESS MAYWEED
   M. inodora
5. WILD CHAMOMILE
   M. chamomilla
6. COMMON C
   Anthemis nobilis

2. **Corn Marigold** (*C. ségetum*).—Leaves smooth, toothed, and lobed, upper ones clasping; scales of the involucre egg-shaped and blunt, with a broad membranous margin; stem branched; flowers solitary, terminal; perennial. This plant, though somewhat local, is so abundant in some districts, that every cornfield is spangled with its bright yellow blooms. In June and July, its large flowers often contrast beautifully with the blue and scarlet blossoms growing among the corn. In France, it is more frequent than in our fields. It has remarkably smooth and glaucous foliage, and the flower stands on an angular stalk about a foot high, which is alternately branched. Both disk and ray of the blossom are of uniform yellow, and it is as large as a garden Marigold.

Beautiful as the flower is, yet growing in land on which ears of corn should be multiplying, it is most unwelcome to the farmer, as are most of its floral companions there:—

> "The lowly bind with its delicate tinge,
> The azure succory's silken fringe,
> The modest scabious of deeper blue,
> And silvery galium of virgin hue,
> The gay fluellin and ox-eye bold,
> And their gaudy neighbour the Marigold."

The French call this flower *Marguerite jaune, Souci des champs, Souci des blés;* the Italians term it *Crisantemo*, and the French *Chrysanthème*, names which, like our old ones of Golding and Goul, and the German *Goldblume*, refer to its rich hue, and some of which are made from the Greek words for Gold-flower. The old Gool-ridings of Scotland were established for the purpose of exterminating this weed from the corn-fields, and a penalty of a wether sheep was paid by the farmer whose field was found so neglected as to furnish a large crop of the Gools. The practice is supposed to have originated with the Vice-Chancellor of Henry VI., who exercised great severity towards the farmers on his own lands, and established the Gool-ridings, in order to punish them for their omissions in not clearing the corn of the "Carr-gulds." In Denmark, a law compels the extirpation of the Corn Marigold.

45. Wild Chamomile, Fever-few (*Matricária*).

1. **Common Fever-few** (*M. parthénium*).—Leaves stalked, flat, twice pinnate, the segments egg-shaped and cut; flower-stalks branched; stem erect; involucre hemispherical and downy; receptacle convex; pappus short, toothed; perennial. This is a common plant in waste places and hedges. Its stem is one or two feet high, and the disk-flowers are yellow, with short white rays around. Persons who are afraid of bees should carry a piece of the plant in the hand; for these insects carefully avoid contact with it, disliking, it is said, its aromatic odour. Its English name is a corruption of Febrifuga, from its old uses in fevers. It is now commonly called Feather-few, and was so called by some of the herbalists, probably on account of its delicately cut leaves, which are conspicuous even in winter by their green hue. The odour is pleasant, something resembling that of the chamomile, but weaker. The plant was formerly regarded as a specific for ague: it was made into a syrup for winter use, and, mingled with honey, was supposed to

cure cold and cough; it was also used as a cosmetic. It is still employed externally as a lotion in cutaneous disorders. Some authors include it in the genus Chrysanthemum.

2. **Scentless Mayweed** (*M. inodóra*).—Leaves sessile, twice pinnatifid, the segments thread-like; stem branched, spreading; receptacle convex; pappus entire, or 4-lobed; annual. A perennial variety of this plant, growing on the sea-shores, having fleshy leaves and a hemispherical receptacle, is sometimes described as *M. marítima*. Everybody knows the common Mayweed, with its very convex yellow disk and long white ray, though it puzzles the young botanist by belying its name, and having an odour which, though not aromatic, is powerful and unpleasant. It is in flower from June to the end of autumn; its stem is about a foot high, and the blossoms large, and on long naked flower-stalks. It grows on banks, field-borders, sea-beaches, and other waste places.

The variety called *marítima*, which is often found on parts of the shore exposed to the sea spray, has been found, on analysis by Mr. Brand, to contain iodine; and the specimens having been well washed previously to analysis, the iodine could not have been derived from saline incrustation. Some other plants, as a moss called the seaside grimmia, and the pretty flower called thrift (*Státice arméria*), were found also to contain it. Iodine was found to exist in all the tissues of these plants gathered from the seaside, the specimens being perfectly healthy. Subsequent investigations have detected iodine in a number of substances hitherto unsuspected. M. Châtin believed it to exist in marine and fresh-water plants in all quarters of the globe, while coal is rich in the iodine derived from vegetables of former ages. The anti-scorbutic effects of water-cress, and some other aquatic plants, have been attributed to the presence of iodine in their tissues; and it has been suggested that plants growing in running water, or in large bodies of water which may be strongly agitated by the winds, contain more iodine than those of stagnant water; and that the proportion is very small in species which are submerged either partially, or only at intervals. Iodine is well known to exist largely in many seaweeds.

3. **Wild Chamomile** (*M. chamomílla*).—Leaves smooth, twice pinnatifid, with thread-like segments; involucre with blunt scales, slightly membranous at the margin; receptacle oblong, narrow, and much raised; annual. The flowers of this plant have a conical disk, and short, toothed, white rays. They expand from June to August, and have a bitter flavour and aromatic odour very much like that of the true Chamomile-flower, for which they are often substituted. Their properties, however, are somewhat less powerful than in that species. This plant grows on waste grounds, and in corn-fields.

46. Chamomile (*Anthemis*).

1. **Common Chamomile** (*A. nobílis*).—Leaves twice pinnate; segments very slender and awl-shaped, somewhat downy; receptacle conical, the scales scarcely longer than its disk; perennial. Of all the plants which won in the olden times a reputation for their sanatory properties, none have retained more credit in modern days than the Chamomile. In villages, it is regarded as supplying the very best of tonics, and chamomile-tea is taken in

the early morning with unhesitating faith. Even in our days, we may sometimes see the delicate invalid sitting by the chamomile-bed to inhale an aroma which he hopes will bring strength to the weakened lungs. The flowers are strongly fragrant, and bitter, containing camphor and tannin; and both odour and flavour may be extracted either by water or alcohol. They also afford an essential oil of a fine blue colour, which, on exposure to air, becomes yellow. Their properties are tonic, carminative, and slightly anodyne; and according to Dr. Schall, the infusion is not only an effectual preventive of nightmare, but the only certain remedy for that complaint. The old writers said that the syrup made of the juice of Chamomile flowers, mingled with white wine, was a cure for jaundice; and that a decoction of the flowers is "good to wash the head, and comfort both it and the brain." The Chamomile, though somewhat local, is frequent on many pastures and dry commons, as on those about Tunbridge Wells, making the turf fragrant as the foot presses it. The stem is about a foot long, branched and prostrate; each branch is terminated by a single flower with a yellow disk (which eventually becomes conical), surrounded by white rays. All parts of the flower are intensely bitter, especially the yellow disk, and in this and the involucre the chief virtue of the plant resides. The wild plant is on this account preferable to the cultivated one, for culture leaves the blossom with very little disk, the central florets becoming changed into rays. The difficulty of collecting the wild flower in sufficient abundance renders it, however, necessary that the Chamomile should be planted; and immense quantities of the plant are reared for the London market in the neighbourhood of Mitcham and Tooting, where, during July, August, and September, hundreds of people are engaged in gathering the blossoms.

Our fathers early discovered that, as Shakspere said, "The Chamomile, the more it is trodden on, the faster it grows;" and country people yet walk daily over the little beds of this plant in their gardens in order to help it to perfection. Our ancestors evidently liked its aromatic scent; for Lawson mentions seats formed of banks of Chamomile and other flowers, on which the men of old times loved to repose in sunshine or shadow. These banks were common in gardens some centuries since, as may be seen in old pictures. One of these, engraved from a MS. of the "Romaunt of the Rose," was reproduced by Mr. T. Hudson Turner, in the *Archæological Journal*, and represents a bank of earth thrown up against the wall of the inclosure, the front faced with brick or stone, the mould reduced to an even surface, and planted to suit the taste of the owner. Chaucer, too, says—

> "And on a little herbere that I have,
> That benched was on turves fresh igrave,
> I bade men shoulde mee my couche make."

Such a bank, planted with Chamomile among the turf, would present a soft cushion-like surface, and to those who liked the odour would yield, on pressure, a pleasant perfume. Parkinson alludes to this old use of the plant; he says, "It is a common hearbe, well knowne, and is planted of the rootes in alleyes and walkes, and on bankes to sit on, for that the more it is trodden on and pressed downe in dry weather, the closer it groweth, and the better

it will thrive: the use thereof is very much both to warm and to comfort and to ease paines, being applied outwardly after many fashions." He adds, as do all the writers of that day, that the decoction of the flowers cures the ague. The scent of the blossom is somewhat like that of the quince, or, as some say, of the apple; hence its name, signifying in Greek Ground Apple. The plant, besides growing wild among the turf of most European countries, is almost universally cultivated for sale. The French call it *Camomille*, the Dutch and Germans *Kamille*, the Italians *Camomilla*, and the Spaniards *Manzanilla*. This plant is not a native of America; but Sir Charles Lyell, in his work on the United States, remarks that he saw it growing all about the neighbourhood of New Harmony, and adds, "Many European plants are making their way here, and it is a most curious fact, which I afterwards learned from Dr. Dale Owen, that when such foreigners are first naturalized, they overrun the country with amazing rapidity, and are quite a nuisance; but they soon grow scarce, and after eight or ten years are scarcely to be met with at all." Probably this may prove to be eventually the case with some of the weeds carried of late years into the Australian fields, and proving so troublesome to the cultivator. Colonel Mundy says, "Many European plants newly introduced for the gardens in Australia seem to be regularly puzzled by the climate, and to be most singularly affected by it. They seem to bud prematurely, and then remain stationary, as though waiting for a safe opportunity of coming out. When once expanded they are most luxuriant, but one or two hours of southerly wind will so entirely blast the blossoms and young shoots, that a newly-arrived English gardener would suppose that his show of bloom was destroyed for the year. A change of wind and a shower brings a regeneration more lovely than before; and such may occur half a dozen times ere the midsummer sun finally scorches the poor exotics to tinder. Notwithstanding this, however, several of our wild weeds, as the horehound, the sow-thistle, the thistle, and the poppy, have established themselves in that country in great luxuriance and over wide extents, and it remains for time to show whether in the course of years they will become more or less abundant on the soil."

2. **Ox-eye Chamomile** (*A. tinctória*).—Stem much branched; leaves twice pinnatifid, downy beneath, serrated; receptacle hemispherical; fruit four-sided; annual. This species being often planted in gardens is frequently, if not always, an outcast from cultivated ground. It has been found, though rarely, in fields and stony places, on the banks of the Tees near Durham, and one or two other spots whence it has now disappeared. The large flowers grow singly on long stalks, and both ray and disk are of a golden yellow. The stem is one or two feet high and cottony, and the leaves are rough or hairy above, and white with down beneath. The flowers expand in July and August, and are in France gathered from the fields to be used by dyers, as they yield a beautiful yellow tint.

3. **Corn Chamomile** (*A. arvénsis*).—Stem upright, branched, and downy; leaves twice pinnatifid, segments slender, lanceolate; receptacle conical, its scales lanceolate; fruit crowned with an entire ring; biennial. This plant is found, though rarely, on the borders of cultivated fields both in England and Scotland. Its heads of flowers, which grow singly

1. SEA CHAMOMILE.
Anthemis anglica.
2. OX-EYE C.
A. tinctoria.
3. CORN C.
A. arvensis.
4. STINKING C.
A. cotula.
5. SNEEZE-WORT YARROW.
Achillea ptarmica.
6. DOTTED-LEAVED Y.
A. decolorans.
7. COMMON-MILFOIL.
A. millefolium.
8. WOOLLY-YELLOW M.
A. tomentosa.
9. BROAD-LEAVED BUR-WEED.
Xanthium strumarium.

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on long stalks, on a furrowed stem one or two feet high, expand from June to August; they are large, have a bright yellow convex disk and a white ray, and the florets have always styles—a circumstance which distinguishes this species from *A. cotula*. The flowers are scentless, and the leaves and stem quite white with down.

4. **Sea Chamomile** (*A. ánglica*).—Leaves pinnatifid, somewhat hairy, lobes cut and serrated, acute, bristle-pointed, rather fleshy; receptacle flat; fruit crowned with a very narrow entire border; perennial. This plant, which was found in 1844 on the sea-coast at Sunderland, is a maritime form of *A. arvensis*. Its stem is prostrate and branched, and, as well as its involucre, downy. It bears, in July, flowers with a yellow disk and white rays, the scales of the receptacle being shorter than the opened corollas.

5. **Stinking Chamomile** (*A. cótula*).—Leaves twice pinnatifid, nearly smooth, lobes linear, acute, mostly entire; receptacle conical, its scales linear, bristled; pappus none; rays without styles. The flowers of this species grow singly on long terminal stalks, having a pale yellow convex disk, and a white ray. The stem is from one to two feet in height, branched, angular, and furrowed. It is a very common plant on waste places, banks, sea-beaches, and heaths, and in the south of England is one of the most abundant weeds. It is, however, unfrequent in some of the northern counties, and Dr. Johnston says it is not to be found anywhere in the neighbourhood of Berwick-upon-Tweed. Many a one in wandering through the corn-fields in July and August has gathered it in expectation of finding the fragrant odour of the Chamomile, and has thrown it from him in disgust, for few of our wild plants emit a more offensive odour. It increases by seed with amazing rapidity, and naturalizes itself most easily where, as in some parts of America, it has been accidentally introduced. In our own land it will often so overrun the corn-field as very seriously to disappoint the expectations which the farmer forms of his crop. It has several country names, some of them relics of the olden times, and too profane for record here, but Mather and Stinking Mugwort are among those by which it is commonly called in country places. It is said to be sometimes, notwithstanding its unpleasant odour, mingled with the chamomile of commerce, but its properties are somewhat different from those of that plant, for the juice is very acrid, and blisters the hands of reapers when gathering in the corn. It has, however, tonic properties, and its powerfully bitter infusion is often taken medicinally. Bees certainly pass by it when gathering honey, and it is said to be obnoxious to them and to many other insects; but Linnæus observed that it was grateful to toads. Its flowers are much like those of the true Chamomile, but larger. Its seeds have many warty angles, or rough points. The Hon. Mr. Curzon, when in Armenia, saw a species of Chamomile (*Anthemis rosea aut carnea*), the powder of which instantly kills fleas and other insects, and which, he says, would be invaluable to travellers in warm climates. The people call the plant *Piré otou*, and our author relates in a most amusing manner the miseries of a little dog, which was subjected to the intrusion of a great number of fleas, until one of the grooms, commiserating his condition, put himself to the expense of a farthing in purchasing two good handfuls of the *Piré otou*, the effect of which was magical. In one minute every insect was destroyed, and,

as this writer narrates, "Fundook swaggered into the kitchen a renovated dog." There can be little doubt that the bitterness, pungency, or aromatic properties of plants like the Chamomiles, fleabanes, and yarrows, have been developed by them in self-defence, to prevent extirpation by browsing animals. The truth of this will be apparent to anyone who looks over a pasture and sees a number of such plants standing erect and untouched, whilst the grass has been closely cropped around them.

47. Yarrow, Milfoil (*Achilléa*).

1. **Sneeze-wort Yarrow** (*A. ptármica*).—Leaves shining, slender, lanceolate, tapering, acute, uniformly and finely serrated, the serratures rough at the margin; ray as long as the involucre, 8—12-flowered; scales of the involucre with a dark brown membranous border; perennial. This is a very pretty plant of our waste grounds and moist meadows, by no means rare, though not, like the Common Yarrow, a denizen of every greensward. It is tall and slender, the stem sometimes three feet high, though more commonly half that height. This is quite erect, and terminates in a rather large corymb of flowers, of which both disk and ray are white, and each flower often as large as a daisy. The plant is very common on mountainous regions, and blossoms in July and August. All parts have a pungent flavour. When put in the mouth it promotes saliva, in the same way as the pellitory of Spain, and, like that plant, it will often cure toothache. It has been much used medicinally, and in spring its young shoots add a pleasant flavour to the dish of salad. When dried it excites sneezing, and the Highlanders are said to use it as a substitute for snuff.

A double-flowered variety of the Sneeze-wort is often cultivated in gardens, and called Bachelor's Buttons; and this with some other species, as *A. nana* and *moschata*, are among the plants called *Genipa* in various Alpine districts. Several of the species grow at great elevations, and many are found on wide extended plains, as on the steppes bordering the Dnieper in Russia, where species of Yarrow, mullein, wormwood, spurge, and thistles are mixed with the tall dry grass, and, being commonly used for firing, are included in the general name of Burian fuel. These flowers render the steppes beautiful during spring-time, covering them for a few months as with an embroidered carpet, but they are soon scorched up by the burning sun of summer.

2. **Dotted-leaved Yarrow** (*A. decolórans*).—Leaves thick, downy, closely dotted, very narrow, lanceolate, coarsely and doubly serrate, with spreading serratures cut into long narrow teeth at the base; ray 5—6-flowered, as long as the involucre; perennial. Mr. Babington remarks of the leaves of this plant, that they are "not all attenuated, and very different in shape, consistency and sculpture from any of the preceding." The flowers, too, which appear in September, are peculiar in their pale buff-coloured rays. The stem is unbranched, erect, leafy, downy, with axillary leafy tufts. The plant has been reported from Matlock, in Derbyshire, but it appears to be only known in this country as a cultivated plant.

3. **Common Yarrow, or Milfoil** (*A. millefólium*).—Leaves deeply twice pinnatifid, either woolly or nearly smooth; lobes cut into slender acute

segments; stems furrowed; scales of the involucre nearly smooth; root perennial. Several of the old names of this plant are very significant of its former uses: Souldier's Wound-wort, Knyghten Milfoil, and Nose-bleed, all show how much our fathers prized this herb as a vulnerary; while its common name of Old Man's Pepper indicates its use as a condiment to the salad, though it scarcely merits this distinction, for but a slight pungency exists in its young leaves. It is, however, bitter, and has a good deal of astringency, though, as Professor Burnett remarks, "it is little esteemed, except by the good women of the Orkneys, who hold Milfoil tea in high repute for its power in dispelling melancholy." Its odour is slightly aromatic, and the fresh roots have a warm and pleasantly pungent flavour; there is no doubt that any part of the plant is a safe and useful application to wounds. It is still in common use to cure headache, and people in villages yet put this herb up the nostrils to stanch bleeding. We have known people take large quantities as a remedy in consumption; but the herb is too powerful to be used safely in so extensive and indiscriminate a manner, though the Yarrow salve still made by country people deserves some praise.

The Yarrow is so common a plant that it may be found on every heath, or meadow-land, or sunny bank; and we could rarely wander into an English churchyard from June to September without seeing its dense clusters of white flowers, more or less tinged with a pinkish or purple hue, growing on an angular stem one or two feet high. Its dark green beautifully-cut leaves add much to its beauty, and it may often be found looking fresh and verdant when the chilling winds of winter have swept from the mead all flowers save itself and the daisy; and sometimes a stray plant of Yarrow will smile to the sunshine of a Christmas-day. Agnes Strickland has some lines to this flower:—

"Green Yarrow, Nature's simplest child,
Thy leaves of emerald dye,
And silvery blossoms undefiled,
On rugged path, or barren wild,
The traveller passes by
With reckless glance and careless tread,
Nor marks the kindly carpet spread
Beneath his thankless feet;
So poor a meed of sympathy
Do generous herbs of low degree
From haughty mortals meet.

But thou a resting-place hast found
Which none disputes with thee:—
The silent churchyard's lowly bound,
Where sweetly on the hallow'd ground
Thou growest wildly free;
Aye mantling o'er each nameless mound
Thy graceful foliage creeps around,
And thy pale blossoms wave,
Wet with the dew's descending shower,
Beneath the yew's funereal bower,
And mourners in the autumn hour,
Behold and bless the gentle flower,
That decks the peasant's grave.'

Achilles is said to have been the first who used this as a wound-herb, and

the plant, which is as abundant on many of the fields of the Continent as on ours, has several names which allude to the warrior whose deeds the ancient poets have recorded. Thus it is the *Schafgarbe* of the Germans, the *Achillea* of the Italians, and the *Aquilea* of the Spanish. The Dutch term it *Duizendblad*, and the French, besides calling it *Achillée*, know it also as *Herbe au charpentier*, because its healing powers are fitted to heal the wounds caused by any sharp instrument used by the mechanic.

4. **Woolly Yellow Milfoil, or Yarrow** (*A. tomentósa*).—Leaves woolly, pinnatifid; lobes crowded, 2—3-cleft; segments slender, acute; corymbs repeatedly compound; scales of the involucre woolly; perennial. This plant, which grows on several dry hilly pastures in Scotland, has a woody stem about six or eight inches high, prostrate at the base. The flowers expand in August, and both ray and disk are of a golden yellow, growing on much-branched corymbs. The leaves are downy. The small size of this species readily distinguishes it from the others; but there is little doubt that, on the few spots where it occurs, it has escaped from cultivation.

48. Bur-reed (*Xánthium*).

Broad-leaved Bur-reed (*X. strumárium*).—Stem without spines; lower leaves heart-shaped, 3-lobed at the base, coarsely toothed; fruit downy, with two straight beaks, having hooked prickles; annual. This plant is placed by botanists in an anomalous genus, as not agreeing in characteristics with any other of the compound flowers. It can scarcely be said to be even naturalized, though occurring in several places in the south of England, and about Kerry, in Ireland, on waste grounds where the soil is rich and moist. Its stamens and pistils are in separate flowers on the same plant, and the prickly involucres which surround the fertile flowers enlarge and become part of the fruit. Its blossoms expand in August and September, and its greenish flowers are more curious than beautiful. Dioscorides mentions that an infusion of this plant dyes the hair yellow, and though yellow hair has only of late years been admired by us, yet that it was so in earlier days, the poets, from Chaucer to Spenser, abundantly testify. The latter poet thus praises the beauty of one of his heroines :—

> "Her long loose yellow locks, like golden wire,
> Sprinkled with perle and perling flowers between,
> Do like a golden mantle her attire."

At that time it was usual not only to dye the hair yellow, as in the days of Dioscorides, but to give it that tinge by sprinkling over it a yellow powder. This must account for the number of portraits of yellow-haired people which belong to the period of Queen Elizabeth.

The Bur-reed is also called Lesser Burdock, because in its general habit, leaves, and flowers, it is much like that plant. Some of the exotic species, as the Spiny Bur-reed (*X. spinósum*) and the Hedgehog Bur-reed (*X. echinátum*), are still more like burs than this, and the spiny species is by many thought to be the one referred to by the ancients. The Bur-reed is called in France *Lampourde;* in Germany, *Spitzklette;* in Holland, *Kleine Klissen.* The Italians term it *Lappola minore*, and the Portuguese, *Bardana menor.*

Order XLVII. CAMPANULACEÆ—BELL-FLOWER TRIBE.

Calyx superior, 5-lobed, remaining till the fruit ripens; corolla regular, bell-shaped or wheel-shaped, rising from the mouth of the calyx, 5-lobed, and withering on the fruit; stamens equalling in number the lobes of the corolla, and alternate with them; anthers not uniting, except in the genus *Jasióne;* ovary inferior, of two or more many-seeded cells; style 1, covered with hairs; stigma simple, or with as many lobes as the ovary has cells; fruit dry, crowned by the withered calyx and corolla, splitting, or opening by valves at the side or top; seeds numerous, fixed to a central column. The Bell-flowers and their allies are herbaceous or somewhat shrubby plants, with round or irregularly-angled stems, mostly alternate leaves, without stipules. They have a milky bitter juice, and the roots of several species are edible; but they are more valued for the beauty of. their flowers than for any economical uses.

1. BELL-FLOWER (*Campánula*).—Corolla bell-shaped, with 5 broad and shallow lobes; filaments broad at the base; anthers distinct; stigma 2—5-cleft; capsule 2—5-celled, opening by pores at the side, rarely at the top. Name from the Latin, *campana*, a bell.

2. RAMPION (*Phyteúma*).—Corolla wheel-shaped, with five deep lobes; filaments broad at the base; anthers distinct; stigma 2—3-cleft; capsule 2—3-celled, bursting at the side. Name from the Greek, *phyton*, a plant.

3. SHEEP'S-BIT (*Jasióne*).—Corolla wheel-shaped, with 5 long narrow segments; anthers united at their base; stigma 2-cleft; capsule 2-celled, opening at the top by small teeth; flowers in heads, within a many-leaved involucre. Name of uncertain origin.

1. BELL-FLOWER (*Campánula*).

* *Corolla bell-shaped; capsule top-shaped; pores just below the calyx segments.*

1. Spreading Bell-flower (*C. pátula*).—Stem angular, rough; leaves somewhat rough, with rounded notches at the margin, wavy, oblong, and sessile, lower ones tapering at the base; flowers few, on long stalks, in spreading panicles, erect, with the clefts close to the calyx segments; annual. This is by no means a common plant. It is almost limited to the western and southern counties of England, where it occurs in pastures and hedges, and even there is seldom abundant. It is somewhat similar to the common harebell, but is distinguished from it by its rough stem and loose panicles of larger, more open, cup-shaped, and deeper purple flowers. The Rev. W. T. Bree, referring to this plant at Allesley, in Warwickshire, says: "In the immediate neighbourhood of this place I should seek in vain for a wild specimen of such plants as the viper's bugloss, the blue succory, kidney-vetch, wood spurge, wild clary, common wormwood, and several others equally common; while the beautiful *Campánula pátula*, generally, and with reason, considered one of our rarer natives, occurs plentifully in this and other parishes of the neighbourhood. I have been told that, some years ago, a noble lady resident in this county informed the celebrated Mr. Curtis

that *C. pátula* was common in Warwickshire. As her ladyship was at that time only commencing the study of Botany, Mr. Curtis seemed unwilling to credit the statement, and concluded that some other more common species had been mistaken for the one in question, assuring her at the same time that *C. pátula* was one of our rarest English plants." This plant is in flower from July to September, and its stem is about two feet high.

2. **Rampion** (*C. rapúnculus*).—Stem somewhat angular, rough; leaves with rounded notches at the margin, those of the root oblong, inversely egg-shaped and stalked, upper ones slender and lanceolate; panicle of flowers erect; perennial. This species, which is not common, occurs on some gravelly soils in several of the midland counties, as well as in Kent and Surrey, and a few spots as far north as Fife. It is a straight tall plant, its stem two or three feet in height, with clustered panicles of rather small flowers, not spreading, but truly bell-shaped, and of a pale blue colour, and the calyx consisting of five awl-shaped segments. It is doubtful if this is truly wild, for it was much cultivated in this country in former times, and was probably introduced from the south of Europe, in most of the countries of which, as well as in Barbary, it grows wild and in abundance. Its root is white and thick, something like a little turnip, but more tapering; hence its name from *Rapa*, a radish, while the French call the plant *Raiponce;* the Germans, *Rapunzel;* and the Italians, *Raperonzola*. The root, which was formerly prized as an edible vegetable throughout Europe, was largely cultivated in the kitchen-gardens of this country, and called Ramp. Michael Drayton describes it as "the Rampion rare," and several old writers mention it as a valuable vegetable. It is still cultivated to some extent as an esculent in France and Italy, but in this country it is now only to be seen in the garden of the curious, or in wild spots where it has become naturalized. The roots were either boiled and eaten with sauce, or sliced and prepared with vinegar and pepper as a salad. An Arabian species, *C. édulis*, has also a thick sapid root, containing an abundance of starch, and is much eaten.

3. **Peach-leaved Bell-flower** (*C. persicifólia*).—Stem smooth, rounded, and few-flowered; root-leaves inversely egg-shaped, narrowed into a leaf-stalk, and with rounded marginal notches; stem-leaves slender, lanceolate, and sessile, with very narrow serratures; calyx segments entire; perennial. This is a very doubtful native, found in woods near Banff in Scotland, and in Yorkshire, bearing in July its large open blue flowers, which spread so much as scarcely to remind one of a bell. The flowers of the plant are in the wild state often solitary, but when cultivated in our gardens they sometimes crowd together at the upper part of the stem. It is by the gardeners called Paper Bell-flower, from the stiff though delicate texture of the blossoms, which are often double, and form azure or snowy rosettes. It is among the oldest ornaments of our parterre. Gerarde says of it in 1597, "It is planted in our gardens, but does not grow wild in England." The French call it *Campanule des jardins*, and *Campanule à feuilles de pêcher*.

4. **Round-leaved Bell-flower** (*C. rotundifólia*).—Stem smooth; root-leaves heart-shaped or kidney-shaped, shorter than their stalks; stem-leaves slender, the lower ones lanceolate; calyx segments awl-shaped; perennial. This plant, the Harebell of the poets, is by modern botanists restored to the

1. SPREADING BELL FLOWER. Campanula patula.
2. RAMPION BELL FLOWER. C. rapunculus.
3. PEACH LEAVED BELL FLOWER. C. persicifolia.
4. HARE BELL. C. rotundifolia.
5. GIANT BELL FLOWER. C. latifolia.
6. CREEPING BELL FLOWER. C. rapunculoides.
7. NETTLE LEAVED BELL FLOWER. C. trachelium.
8. CLUSTERED BELL FLOWER. C. glomerata.
9. IVY LEAVED BELL FLOWER. C. hederacea.
10. CORN BELL FLOWER. C. hybrida.

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old orthography from which it was corrupted a generation ago, when it became the fashion to write it Hairbell. It grows wild on heaths, banks, and braes, and some who saw it nodding on the wind-swept hill thought that for a bell on so slender a stem Hairbell was an appropriate name. But, in truth, its name appears to have been originally suggested by the places it affects in common with the hare. It is throughout Europe a very favourite flower, and is the *Clochette* of the French, and is called by the Germans either *Weisen-Busch*, or Grass-glass. In some English counties it is familiarly called Witches' Thimble. The leaves on the stem are narrow, but the plant derives its specific name from those about the root, which appear in winter and early spring, but wither by July, when the flower is beginning to droop on its stem. It has been said that Linnæus characterized them by these leaves, having first observed them in winter on the steps of the Upsal University, but the author of that statement has overlooked the fact that the same name was used for the plant by Gerarde two centuries before Linnæus.

"On its fair fragile stalk all lightly swaying,
Trembles the Harebell at each passing breeze,
Or bends to earth, if haply, there delaying,
Seeks its blue depths the velvet-coated bees,
Who, charter'd plunderers, unwearied winging
Their buoyant course from flower to flower, pursue
From hour to hour their toils, till laden, bringing
Home golden treasures with the evening dew."

Much difference of opinion at one time existed as to whether this is the blue-bell of Scotland, or whether that flower is the wild hyacinth, commonly in England called blue-bell. But few Scotsmen will doubt whether the graceful Campanula, so common on their heathery downs, is the flower which they would link with home and country; though Dodonæus says, that in his time the wild hyacinth was commonly known by the name of harebell. Modern poets of Scotland all claim the Campanula both as their blue-bell and harebell. We have Robert Nicholls saying—

"I winna bide in your castle halls,
Nor yet in your lofty towers,—
My heart is sick o' your gloomy hame,
An' sick o' your darksome bowers;
An' O, I wish I were far awa'
Fra their grandeur and their gloom,
Where the free-born lintie sings its sang
On the muir o' gorse an' broom.

"Sae weel as I like the healthfu' gale
That bla's fu' kindly there,
An' the heather brown, an' the wild Blue-b
That wave on the muirland bare;
An' the singing birds, an' the humming-bees,
An' the little lochs that toom
Their gushin' burns to the distant sea,
O'er the muir o' gorse an' broom."

The graceful azure bell is very abundant on sunny slopes amid short grass until the month of September.

Sir Walter Scott evidently alludes to this flower when, in the "Lady of the Lake," he represents Ellen as gathering it:

"She stoop'd, and looking round,
Pluck'd a blue Harebell from the ground
For me, whose memory scarce conveys
An image of more splendid days.
This little flower, that loves the lea,
May well my simple emblem be;
It drinks Heaven's dew as blithe as rose
That in the king's own garden grows."

This is one of the flowers so common, that, like the daisy, it would, when seen in any foreign land, remind us of early days and early scenes. Mrs. Moodie tells us, that in Canada she was deeply affected by the sight of some of these flowers. "Pressing our way through the bushes," she says, "we came to a small opening in the underwood, so thickly grown over with roses in full blossom, that the air was impregnated with a delightful odour. In the centre of this bed of sweets rose an humble mound that protected the bones of the red man from the ravenous jaws of the wolf and wild cat. It was completely covered with stones, and from among the crevices had sprung a tuft of blue Harebells, waving as wild and free as if they grew among the bonny red heather on the glorious hills of the North, or shook their tiny bells to the breeze on the broom-encircled commons of England."

Two or three species of Bell-flowers seem to have shared in the general name of Harvest-bells, because they bloomed in autumn. Clare apparently calls this by that name:—

"Among the heath-furze still delights to dwell,
Quaking, as if with cold, the Harvest-bell."

The roots of this Campanula may be eaten, and the juice of the flower makes a very good ink, which, when alum is mingled with it, becomes of a rich green colour. Large clusters of the Harebell are sometimes planted in gardens with very good effect; and a white variety occurring rarely on our downs, and more frequently on those of France, is also often planted in gardens. The French call this modest white flower *La religieuse des champs.*

The peculiar structure of this prettily-veined Blue-bell is described in so lucid and interesting a manner by Professor Lindley, in his "Ladies' Botany," that we shall quote it for our readers. One is struck in reading a work like this, at once so scientific and simple in its details, with the contrast afforded between the works of modern men of science and some that were published in the olden time. Sir Hugh Plat wrote his "Garden of Eden" in 1675; and in his Epistle to all "Gentlemen, Ladies, and all others delighting in God's vegetable creatures," takes great praise to himself for his explicitness. Referring to that "gallant and glorious Italian," Io Baptista Porta, he says, "I make no question that if he had knowne this part of vegetable philosophy, he would have penned the same as a sphinx, and roled it up in the most cloudy and darksome speech that he could have possibly devised." Very different from this "glorious Italian" is our author. "From the base of the corolla of the Harebell," says Dr. Lindley, "and consequently from the summit of the ovary, spring five stamens, whose filaments are broad, firm, and fringed, curving inwards at the base, and bending over the top of the

ovary as if to guard it from injury: these points touch the style, and keep the anthers parallel and in contact with it, till they shrivel up and fall back, which happens immediately after the flower unfolds. The style is a taper stiff column, about the length of the corolla, and shorter than the stamens. It is covered all over, up to the very tips of the stigma, with stiff hairs; which Nature has provided to sweep the pollen out of the cells of the anthers, as the style passes through them in lengthening; if it were not for this simple but effectual contrivance, as the anthers burst as soon as ever the corolla opens, their pollen would drop out of the nodding flowers, and be lost, before the stigma was expanded and ready to receive the fertilizing influence.

"Next let us look at the ovary. This organ is, in the Harebell, a case containing three cavities, or cells, surrounding a central axis; in each cell there is a large fleshy receptacle, over which is spread a multitude of ovules. After the stigma is fertilized, the corolla and the stamens drop off; the sepals harden, enlarge, and collapse; all the parts become browner and thicker; stout ribs appear on the substance of the ovary, which droops still more than the flower itself; and at last a general dryness, hardness and brownness announce that the ripening of the fruit is accomplished. But how are the dust-like seeds ever to find their way out of the lidless box, or to penetrate its tough sides? Considering what happens in so many other plants, we should naturally expect that it would take place by a separation of the edges of the three carpels into valves near their points; but upon looking at the top of the ovary, between the sepals, we find that part still tougher than the sides, and without the slightest appearance of an opening. It is by a rending of the thinnest part of the sides of the fruit in the fork of the principal ribs that these valves are produced, and that Nature provides for the escape of the seeds; the rending takes place upon the final drying of the sides of the fruit, when every part becomes stretched so tight, that any weak portion must of necessity give way. As the stretching takes place with uniformity, and as the skin at the forks of the ribs is always more tender than any other part, the opening of the valves will consequently occur with the same invariable certainty as the formation of the seeds."

This exquisitely adapted contrivance of His hand who has made "summer and winter," and decked with beauty the lilies of the field, is not confined to the Harebell, but is shared by all the plants of the genus. But there is a significance in the arrangement of stamens and pistil, and the earlier maturity of the former, that was not realized in Lindley's day. It is now known that the pollen is not stored up until the stigmas expand, but is all carried off by bees before that event, and much of it is used for the fertilisation of Harebells that have flowered a little earlier. From the hanging position of the flower, and the fact that the inner walls are studded with stiff hairs, bees find it more convenient to alight on the style and climb up it to the honey-glands. In so doing their hairy faces and under sides clear off much of the pollen, a process completed by the visits of successive bees. Then the closed stigmas stretch out their arms, and the alighting bees bring their pollen-smeared under sides in contact with the sensitive surface and effect fertilisation with pollen brought from a younger flower.

5. **Giant Bell-flower** (*C. latifolia*).—Stem erect, slightly angular;

leaves egg-shaped and lanceolate, tapering, rough, doubly serrated lower ones stalked; stalks one-flowered; calyx smooth, its segments lanceolate, pointed, and finely serrated; perennial. This is a very conspicuous, though not a generally distributed plant. It grows in moist shady woods, and is very rare in our midland and southern counties, though less so in the north of England, while it is frequent in those of Scotland. The stem is two or three feet high, stout and strong, with very large stalked flowers of purplish blue, which in the Scottish woods are often of a pure white. They are hairy within, and far exceed in size those of any other of our native Bell-flowers. This plant is often called Canterbury-bell, though *C. médium*, a German species grown in our gardens, is also so distinguished by many. Gerarde says of the Canterbury-bell, "It doe grow very plentifully in the lower woods and hedgerows of Kent, about Canterbury, Sittingbourne, Southfleet, Greenhithe, and several other places." He calls it also Haskewoort and Throtewoort; but his description evidently refers to the Nettle-leaved Bell-flower. The Giant species, however, in all probability, was the first plant termed Canterbury-bell, if, as we believe, the opinion of a learned ecclesiologist as to the origin of its name be the correct one.

The name of Canterbury-bell may possibly have been given to the plant from the place of its growth, but it is far more likely that, as Dr. Rock has suggested, it was so called from its resemblance to the hand-bells which were placed on poles, and rung by pilgrims when proceeding to the shrine of Thomas à Becket. The details of these processions to the tomb of the "blisful martir" have been rendered familiar to us by Chaucer and other old writers; and William Thorpe, a Lollard, who was, in 1407, examined by Bishop Arundel, describes them in no measured terms. He says: "Everie towne that they come through, what with the noice of their singing, and with the sound of their piping, and with the jangling of their Canterburie bels, and with the barking out of dogges after them, they make more noice than if the king came there away with all his clarions and many other minstrels."

Coventry-bells, Harvest-bells, Mariets, Mercury's Violets, and Wood Bell-flower, were also common names for different species in the olden time; and it is quite probable that Clare alludes to the Nettle-leaved species when he writes of the Canterbury-bell, as it is the commonest of any of the large-flowered kinds:—

"And down the hay-fields, wading 'bove the knees,
Through seas of waving grass, what days I've gone,
Cheating the hopes of many labouring bees,
By cropping blossoms they were perch'd upon;
As thyme among the hills, and lambtoe knots,
And the wild stalking Canterbury-bell,
By hedgerow side, or bushy bordering spots,
That loves in shade and solitude to dwell."

6. **Creeping Bell-flower** (*C. rapunculoides*). — Stem erect, slightly angular, leafy, scarcely branched; leaves rough, unequally notched at the margin, lower ones heart-shaped, on long stalks, upper ones lanceolate and sessile; stalks one-flowered; flowers forming a one-sided leafy raceme; calyx segments slender and entire, at length turning backwards; rootstock creeping and perennial. This is a large and handsome species, having a stem two feet

high, and bearing, in July and August, large handsome blue flowers; the leaves gradually narrowing on the upper part of the stem. It might be cultivated for the same purpose as the rampion, as its roots have a similar flavour, and are equally wholesome. It is a rare plant in woods and fields, and occurs in many parts of the country where it has become naturalised—for it is not indigenous.

7. **Nettle-leaved Bell-flower** (*C. trachélium*).—Stem angular; leaves coarsely doubly serrated, lower ones heart-shaped, long-stalked, upper nearly sessile and pointed; flower-stalks axillary, few-flowered; calyx segments lanceolate and erect; root perennial. This is a very common flower, easily known from all the other species by its leaves, shaped like those of the common nettle. It is a very rough plant, and has a stem about two feet high; bearing, from July to October, rather large flowers of a deep purple, or more rarely, as in some parts of Hampshire, of a white hue. It is a handsome addition to the wild nosegay gathered from wood or copse or bushy hedge-bank; and we have, in Kent, seen its bells employed for the same rustic purpose as that to which Clare refers, in Northamptonshire:—

> "When glow-worm found in lanes remote
> Is murder'd for its shining coat,
> And put in flowers that Nature weaves,
> With hollow shapes and silken leaves,
> Such as the Canterbury-bell,
> Serving for lamp or lantern well."

This plant, as well as some other of the species, was formerly used in complaints of the throat, and shared with other kinds the name of Throat-wort.

8. **Clustered Bell-flower** (*C. glomeráta*).—Stem angular, simple, nearly smooth; leaves with very small serratures, lowermost stalked, egg-shaped, somewhat lanceolate and heart-shaped at the base; upper leaves sessile, half-clasping, egg-shaped, acute; flowers sessile in terminal and axillary clusters; root perennial. This handsome Bell-flower is readily known by the clusters of erect, dark, downy, purple, funnel-shaped flowers, surrounded by bracts about half their length. These appear in July and August. The height of the stem varies from three or four inches to a foot; and when the plant is grown in the garden, it is sometimes a foot and a half high. It is not an uncommon plant on dry hilly pastures in England, where the soil is of clay or chalk, but in Scotland is chiefly confined to the eastern counties. In the little village of Bartlow, in Cambridgeshire, there are four remarkable hills, supposed to have been thrown up by the Danes, as monumental memorials of the dreadful battle fought in 1016, between Canute and Edmund Ironside. The author, some years since, found this Clustered Bell-flower largely scattered about these mounds, and on asking of some cottagers the name of the flower, was told that it was the Dane's-blood, and so called because it sprang up from the blood of the Danes. On further inquiry of people in the neighbourhood, she found it universally known there by this name, which is doubtless a very old local one. Several slight varieties of this plant occur, which are by foreign botanists described as distinct species; thus, if the plant grows on a rich soil, or is transplanted to such, it loses the

intensity of the blue tint. It is sometimes found in gardens, but is less prized there than the most ornamental Bell-flower of the parterre, the pyramidal species, *C. pyramidális*, which our old writers called Steeple-milkie Bell-flower. This grows wild in Southern Europe; and in other countries, as in ours, its handsome wide-spread blue or white flowers, trained over a hoop or spreading frame, may often be seen in the window, either of mansion or cottage. It is much used in Holland to place before the fireplace in summer.

It has been noted that the three species last mentioned have different habits as to flowering: in *C. rapunculoides*, the lowest bud opens first; in *C. trachelium*, the uppermost is the first to expand; whilst in *C. glomerata*, the central one of the cluster claims precedence.

** * Corolla bell-shaped; capsule somewhat globose.*

9. **Ivy-leaved Bell-flower** (*C. hederácea*).—Stem weak, thread-like; leaves all stalked, roundish, heart-shaped, angular, and toothed; flowers solitary, on long stalks; perennial This pretty little plant would be known at a glance from any other wild flower, by its bright green ivy-shaped leaves, and in its season of blossom, by its tiny blue bells. A very lovely little plant it is; and it is not an unfrequent one in the south and west of England, growing beside the bog asphodel and the graceful bog pimpernel, and others of the lovely flowers which peep up from among the large mosses to which the streamlet brings a perpetual emerald greenness. It is abundant in Cornwall; and from July to September large masses of the plant may be found upon the moorlands, with their blue bells scattered by thousands among the delicate leaves which lie on the slender branches. The flower-stalks are hardly thicker than a sewing-thread; every breath of wind stirs the bells to motion, and they would be too small to furnish a canopy to a house-fly. The plant is usually about five or six inches in height, but when growing beside some rush or nodding hair-grass, it avails itself of the aid of its stouter neighbour, and climbs up to the height of twelve inches or more. Gerarde, who calls it the Tender Bell-flower, says it was first seen in this kingdom by Master George Bowles, who in 1632 found it on the dry banks of Montgomeryshire, for a long distance on the highway, though such a situation would certainly be a very unusual one for this plant. It is most abundant in North Wales in damp places. Some authors separate this species from *Campanula* and call it *Wahlenbergia hederacea*, because it differs from the other species in its method of dispersing its seeds. As was explained under the Harebell, the capsule splits below the calyx, but in the Ivy-leaved Bell-flower the seed-vessel opens at the top, inside the calyx.

** * * Corolla nearly wheel-shaped; capsule linear oblong, opening by lateral pores between the segments of the calyx.*

10. **Corn Bell-flower** (*C. hýbrida*).—Stem either simple or branched from the base; leaves oblong, waved, with rounded notches; corolla widely spreading, shorter than the calyx-segments; capsule triangular; annual. This is a small plant, less like a Bell-flower than any of the other species, as its corolla spreads quite out, so as to be almost flat. The stem is from four

1. ROUND HEADED RAMPION
Phyteuma orbiculare.
2. SPIKED RAMPION
P. spicatum.
3. ANNUAL SCABIOUS
Jasione montana.
4. ACRID LOBELIA
Lobelia urens.
5. WATER LOBELIA
L. dortmanna.

Pl. 135.

to twelve inches high, rough and wiry; the plant has waved oblong leaves, with a few terminal flowers of dull bluish-lilac, surrounded by the long calyx-segments, and expanding from June to September. It occurs on dry chalky corn-fields, in the middle and south of England, extending as far north as Durham, but occurring chiefly in the eastern counties. This species is, by some writers, included in the genus *Specularia*, and is very nearly allied to the Venus's Looking-glass of our gardens, which is a Corn Bell-flower of Southern Europe. This last is said formerly to have grown wild in our fields, but was most probably introduced from the other side of the Channel, among the grain. Gerarde says of our Corn Bell-flower, "I found it in a field among the corne, by Greenhithe, as I went from thence unto Dartford, in Kent, and in many other places thereabout, but not elsewhere; from whence I brought of the seedes for my garden, where they came up of themselves, from yeere to yeere, by falling of the seedes."

2. RAMPION (*Phyteúma*).

1. **Round-headed Rampion** (*P. orbiculáre*).—Flowers in a round terminal head, with lanceolate bracts; lower leaves notched, heart-shaped, stalked; upper narrow and sessile; perennial. This is a very singular plant, having a leafy stem, a foot or a foot and a half high, on which, in July, stands a round head of the most rich blue flowers. After these handsome blossoms have departed, the plant is remarkable for the heads of fruit, which form a perfect oval, and have their calyxes remaining and spreading out in a starry form. This Rampion is rare, growing on chalky soil in the south of England, as the open downs of Kent, Sussex, Surrey, and Wilts. Not a leaf is to be seen in July about its root, for, as in the Harebell, by the time of flowering the foliage has all withered away. At first the petals of this flower are united by their edges as in *Campanula*, but they afterwards separate. In the next species, however, the petals separate only partially, the tips continuing to be joined together.

2. **Spiked Rampion** (*P. spicátum*).—Heads of flowers oblong, of fruit long and cylindrical; lower leaves egg-shaped and heart-shaped, somewhat doubly serrate, stalked; upper leaves slender, lanceolate, and sessile; bracts slender. This rare species has been found only in Sussex, where it grows in the woods and thickets about Waldron. Its stem is one or two feet high; each stem bearing, in June and July, a solitary terminal head of cream-coloured flowers. The spike of flowers is from two to four inches long. The root is edible, and was formerly cultivated and eaten, either as a salad, or boiled. It is still a common vegetable in Switzerland; and it is open to question whether its presence in this country is not entirely due to former cultivation.

3. SHEEP'S-BIT (*Jasióne*).

Annual Sheep's-bit, or Scabious (*J. montána*).—Leaves oblong, somewhat blunt, wavy; flowers stalked; stem simple or branched, downy; bracts smooth or hairy; calyx-segments narrow and bristly; annual or biennial. The heath and open down are very beautiful at Midsummer, often reminding one of Tennyson's words:—

"Calm and deep peace on this high wold,
And on these dews that drench the furze,
And all the silvery gossamers
That twinkle into green and gold."

The Sheep's-bit is often found growing there among furze and heather, from June to September; for it flourishes in profusion on the gravelly or heathy soil of sunny slopes, having dense hemispherical heads of flowers of a bright blue colour, with a leafy involucre below them, on stems from six inches to two feet high, several of which arise from the crown of the root. These flowers are somewhat like those of the Scabious; but the plant may be distinguished from those of that genus by the anthers being united at their base. The French call this Sheep's-bit *Jasione;* the Dutch, *Schaapskruid.* It grows on dry places in Sweden, where it is termed *Mouke;* and the Spanish and Portuguese call it *Jasione.* It has, in the union of its anthers, an affinity with the compound flowers, from which it is distinguished, however, by its two-celled capsule. It has a disagreeable odour, which when the plant is bruised becomes more powerful; the whole herb is milky, and is sometimes eaten by sheep. Linnæus says that these animals are very fond of its flowers.

It varies very much in size, according to the degree of dryness in its habitat.

Order XLVIII. LOBELIACEÆ—LOBELIA TRIBE.

Calyx growing from the ovary, 5-lobed or entire; petals united, inserted in the calyx; stamens 5, free from the corolla, and alternating with its lobes; anthers united; ovary inferior, of 1—3 many-seeded cells, opening at the top. The plants composing this order are either herbs or small shrubs, with alternate leaves, and without stipules. They contain a bitter milky juice, which in the plants of warm regions, where the species are more abundant, becomes very acrid. By some authors this is regarded as a sub-order of Campanulaceæ.

LOBÉLIA.—Corolla 2-lipped, the upper part split to the base of the tube; upper lip smaller and erect, lower spreading, 3-cleft. Named in honour of Matthias Lobel, a Flemish botanist.

LOBELIA (*Lobélia*).

1. **Acrid Lobelia** (*L. úrens*).—Stem nearly upright; lower leaves inversely egg-shaped, stalked, slightly toothed; upper ones lanceolate, sessile, serrated; perennial. This is a very rare plant, found, indeed, only on heathy land in Cornwall and Dorset. It has a leafy, somewhat rough stem, a foot or more high, and the light bluish-purple flowers are downy externally. They grow in erect, leafy, lax clusters, and expand in June and July. It is a noxious plant, full of a milky acrid juice, which will raise a blister on the skin, though neither of our native species can at all compare with several well-known foreign Lobelias in this respect. Some of these have highly poisonous juices. Thus *L. longiflóra,* of the West Indies, even destroys horses feeding upon it, and is hence called *Chatta cavallo.* It

is grown in gardens in Spain, where it is termed *Rabienta cavallos.* Still more noxious than this is the *L. tupa*, of which Feuillée says, that even the odour of the flower causes excessive vomiting, and that, if applied to the skin, it produces violent inflammation and pain. The juice of several species of Lobelia, if it touches the eyes, causes immediate pain; and such also, doubtless, would be the result with our native acrid kind. Some of the species, however, seem innoxious, and Thunberg mentions that the root of a Lobelia is commonly eaten in Japan; while in the case of *L. tenella* the milky juice is mild and insipid. Several plants of the genus, growing in tropical regions, have a thick milky juice, which contains caoutchouc.

Neither of our wild species is common, but our gardens contain several well-known and handsome Lobelias. The rich scarlet Cardinal-flower, *L. cardinális*, so frequent on our borders, was mentioned by Parkinson in the time of Charles I. as a "brave plant." It grows commonly by rivers and ditches, in many parts of North America. Still more brilliant in hue are the Refulgent and Splendid Lobelias (*L. fúlgens* and *L. spléndens*), which Humboldt and Bonpland introduced to our gardens, the first flowers of this kind grown there having been obtained from the seeds in the herbarium which these travellers brought with them from Mexico. The Splendid Lobelia is beautifully dashed with claret colour. The Cardinal-flower, so called from some resemblance in its blossoms to the scarlet hat of the cardinal, has its synonym in most countries of Europe. Thus, the Germans call it *Kardinalsblume;* the Dutch, *Kardinalsbloem*, and the Italians, *Fior Cardinale.* The little *L. grácilis*, so frequent in gardens, is, like our wild species, of blue colour, but the prevailing hue of the genus is scarlet.

2. **Water Lobelia** (*L. dortmánna*).—Stem simple; leaves almost cylindrical, of two parallel tubes, blunt; flowers in a distant raceme; perennial. This very elegant aquatic plant is found in abundance in the picturesque lakes of Cumberland and Westmoreland; but it is not confined to them, occurring in several pieces of water, especially such as lie among mountains in the north and west of England, Scotland, and Ireland, and in several parts of North Wales. The gravelly bases of our northern lakes are, in July and August, often covered with a thick matted carpet formed by its leaves, the flowering portion of the stem being usually the only part of the plant which rises above the water. This stalk or stem is slender, almost leafless, a foot or more high, having a long and distant cluster of light blue drooping flowers. A number of fibres creep forth and descend from a firm white fleshy root-stock; and the root as well as herbage of the flower contains a milky juice, which is much less acrid than that of most of the species. It received its specific name from Dortmann, an apothecary, who first sent it to Clusius.

Order XLIX. VACCINIEÆ—CRANBERRY TRIBE

Calyx growing from the ovary, of 4—6 lobes, which are sometimes [illegible] their shallowness scarcely perceptible; corolla of one petal, lobed like [illegible] calyx; stamens not united, twice as many as the lobes of the corolla, ins[illegible]

into the disk of the ovary; anthers with two cells, opening by two pores, and often furnished with two awns; ovary with a flat disk, 4—10-celled; cells one or many-seeded; style and stigma simple; fruit a juicy berry crowned by the remains of the calyx, containing many minute seeds. This order consists of small shrubs, with undivided, alternate, often leathery, leaves, chiefly inhabiting mountainous regions, or those of high northern latitudes. The bark and leaves are astringent, and the berries have an acid and pleasant flavour.

WHORTLEBERRY, CRANBERRY, ETC. (*Vaccínium*).—Calyx 4—5-lobed; lobes sometimes very shallow; corolla bell-shaped, or wheel-shaped, 4—5-cleft; stamens 8—10; berry globose, 4—5-celled, many-seeded. Name of doubtful origin.

WHORTLEBERRY, CRANBERRY, ETC. (*Vaccínium*).

* *Leaves not evergreen; anthers with 2 spurs at the back.*

1. **Bilberry**, or **Whortleberry** (*V. myrtíllus*).—Stem acutely angular; leaves egg-shaped, serrated, smooth; flowers solitary; perennial. This elegant shrub, which is sometimes called also Whinberry, is very abundant on some heathy, stony, and mountainous places. It is rarely more than two feet in height, and much branched, numbers of these little bushes being generally found together; for the Bilberry is a social plant. The wax-like drooping flowers appear in May among the delicate leaves: they are greenish-white, tinged with red.

The internal arrangements of these flowers are curious. The anther-cells are drawn out into the form of tubes which open only at their extremities, whilst from their backs stand out little spurs, two from each stamen. The stamens all stand with the anther-tips pressed against the central style, so that no pollen can fall out. Now, it is impossible for any long-tongued insect to get at the honey in that jar-like blossom without pressing against one or more of the anther-spurs, and in that case the anther-tip is pushed away from the style and the pollen falls out on the insect's face, so that on visiting another flower the pollen will be rubbed upon the stigma which partially blocks the entrance to the flower.

As summer advances, the foliage assumes a rich, deep, myrtle-like verdure; and the whortleberries, or "whorts," as country children call them, afford a very pleasant refreshment. These fruits, which are black, and covered with a blue-grey bloom, are very juicy, and their quality is so astringent that they are a common medicine in Arran and the Western Highlands. The Highlanders also eat them with milk, and make them into [illegible]s and jellies, mingling them, too, with their whisky, to give it a higher [illegible]. An old herbalist praises these berries as a remedy for many maladies, [illegible]ys, "It is a pity they are not more generally used." When fermented, [illegible]fford an intoxicating liquor, and they are mixed with some wines to [illegible]ten their colour.

[illegible]arious experiments have been made with these fruits in staining paper [illegible]yeing linen of a violet colour, and they seem to afford a rich hue. The

1. WHORTLEBERRY
Vaccinium myrtillus
2. GREAT BILBERRY
V. uliginosum
3. COWBERRY
V. vitis idæa
4. CRANBERRY
V. oxycoccos

Pl. 136.

moorfowls well know the worth of whortleberries as food. The young mountaineer eats them with delight, and many could say with Robert Nicholls—

"And here are rich Blaeberries, black and wild,
Beneath the beach-tree's thickest branches growing:
This makes me once again a wayward child,
A pilgrimage into the woodland going—
The haunt of squirrels and of wood-mouse knowing.
And plucking black Blaeberries all the day,
Till eastward mountain-shadows night was throwing
And sending me upon my homeward way,
Fill'd both in soul and sense with the old forest grey."

Blaeberry is the name chiefly used for the fruit in the north. In the neighbourhoods of moorlands these fruits are often gathered, and carried about for sale; and in the West of England, and in Surrey and Hampshire, many a merry party wanders forth to go a "whorting" over hills and rocky crags. Goats browse on the young branches, and sheep will occasionally eat the plant, though cows and horses refuse it. Coleridge gives us a beautiful sketch of just such a spot as this plant often serves to adorn, a spot which, as we read the page, the mind involuntarily pictures:

"I find myself
Beneath a weeping birch (most beautiful
Of forest trees, the lady of the wood!)
Hard by the brink of a tall weedy rock
That overbrows the cataract.

At my feet
The whortleberries are bedew'd with spray,
Dash'd upwards by the furious waterfall.
How solemnly the pendent ivy mass
Swings in its winnow! all the air is calm."

Both this species and the Cowberry are very abundant in the north of Europe, the forests in Sweden being often quite covered with different kinds of Whortleberry. It is well distributed over our country, but appears to be entirely absent from Cambridge and Suffolk. The Swedes call this species *Blabar*, and the Cowberry *Lingou*. The Lapps call the Whortleberry *Jokno*. In France the plant is called *Lairette*, and in Germany *Heidelbeere;* while the Dutch call it *Blaubessen*, and the Spaniards and Italians *Mirtillo*. The fruit is much eaten in Poland with cream and sugar, and the plant is in that country termed *Borrowki czarne*.

2. **Bog Whortleberry, or Great Bilberry** (*V. uliginósum*).—Stem rounded; leaves inversely egg-shaped, entire, glaucous, and veined beneath; stalks one-flowered; perennial. This is the Blaeberry of the botanist; but, in country places, all the Whortleberries share this name. It is quite an Alpine plant, often growing almost at the summits of mountains where there are bogs, both in the Highlands of Scotland and the north of England. This species is taller than the last, its stem is more woody, and its more strongly veined foliage is of a glaucous hue. The drooping flesh-coloured flowers, which appear in May, are also smaller, and grow nearer together; and the black berries, though larger, and juicy and pleasant, are yet inferior to those of the last species. They are said to have narcotic properties, and, if eaten in large numbers, to produce a sensation of giddiness; while, if taken when

overripe, even in smaller quantities, they in some persons cause headache. Many of the vintners of France are said to use them in colouring their wines, and they yield a highly volatile and intoxicating spirit. The Alpine birds feed on these fruits; and the leaves of the shrub, mixed with the club mosses which so often abound on the spot where the plant grows, are used by the Icelanders in dyeing woollen yarn of a yellow colour.

* * *Leaves evergreen; anthers without bristles.*

3. **Red Whortleberry, Cowberry** (*V. vitis-idæa*).—Leaves inversely egg-shaped, dotted beneath, the margins rolled back; flowers in terminal drooping clusters; perennial. This is a low, somewhat straggling shrub, with firm evergreen leaves, which would at once remind us of the *box*. It is common in the North on mountainous heaths, and bears, in May and June, small pink flowers with four deep lobes. The berries are red, and they may be made into an excellent jelly, which is far superior to that of the red currant for eating with game or venison. They are not, however, well fitted for eating in their uncooked state; for they are both acid and bitter in flavour, and very astringent in their properties. In Derbyshire, the cowberry tart is a common dish. In Sweden these fruits are very extensively used, and the jelly into which they are made is eaten with most kinds of roast meat. Linnæus tells us that they were sent in large quantities from West Bothnia to Stockholm for pickling, and that a very excellent gargle for inflamed throats is made from them. Small cuttings of this plant are, in Norway, placed in gardens around the edges of the flower-beds, instead of box. A Pennsylvanian species (*V. tenéllum*) furnishes a superior fruit; and another plant of this genus (*V. formosum*) is, in China, esteemed a sacred shrub, and its flowers are gathered at the commencement of each year, and placed as offerings on the shrines of the temples.

4. **Marsh Whortleberry, Cranberry** (*V. oxycóccos*).—Stem very slender, prostrate, rooting; leaves egg-shaped, glaucous beneath, the margins rolled back; corolla wheel-shaped, with four deep reflexed segments; perennial. This is a very local plant, growing on those wide-spread heathy bogs which are carpeted by the bright green mosses, and which are dangerous ground to any but the experienced footstep. On many tracts of this kind, in England, Scotland, and Ireland, the low straggling Cranberry bush grows in patches, its tough wiry stems, from eight to ten inches long, bearing in June the solitary terminal flowers, which are on long stalks, of a bright red colour, and have their segments turned back in a remarkable manner. The pleasant acid flavour of the cranberry is well known, and this fruit is gathered both in England and Scotland for sale. Lightfoot mentions that twenty or thirty pounds' worth were sold each market-day, for five or six weeks together, at Langton, on the borders of Cumberland; and it there forms to this day no inconsiderable article of trade, though most of the cranberries which we see in the shops are sent in casks from America, and large quantities of these fruits are also exported from Poland, Russia, and Germany, into the various countries of Europe. Many people in Cumberland make wine from cranberries. They are also preserved in bottles, the fruit needing no preparation, requiring only to be kept in a dry situation. Our English cranberries,

though not so large as those received from America, are not only equal, but even superior to them in flavour. Gerarde calls these fruits Fen berries. "They grow," he says, "in fennie places in Cheshire and Staffordshire, where I have found them in great plentie." The Dutch term them Fen-grapes. The English name of Cranberry is thought to have been derived from the flower-stalks, which are crooked at the top, and which, before the expansion of the blossom, resemble the arching neck and head of the crane. When packed in casks, these berries undergo a fermentation during a voyage, which somewhat injures their flavour. They might be readily cultivated on any marshy lands; and it has been said that their growth on such spots would prove remunerative, as a single plant soon covers a large space with its progeny. In Sweden, where the shrub is abundant, the berries are not eaten, and were, some years since, used solely for cleaning plate. They are a good astringent, and would probably aid in restoring the lost appetite. They were formerly highly praised for their use in pestilential fevers. The French call the plant *Canneberge;* the Germans, *Moosebeere;* the Dutch, *Veenbessen;* the Italians, *Ossicocco;* the Spaniards, *Vacernia lagunosa.* The North American species (*V. macrocárpum*) has been found on Loughton Bog, Flintshire, but was in all probability planted there.

Order L. ERICACEÆ—HEATH TRIBE.

Calyx 4 or 5 cleft, nearly equal, inferior, remaining till the ripening of the fruit; corolla 4—5-cleft, often withering, and remaining attached to the plant; stamens of the same number as the segments of the corolla, or twice as many, inserted with the corolla, or but slightly attached to its base; anthers hard and dry, the cells separating at one extremity, where they are furnished with spurs or awns, and at the other opening by pores; ovary not adhering to the calyx, surrounded at the base by a disk or by scales, many-celled, many-seeded; style 1, straight; stigma 1; fruit a berry, or dry capsule, many-seeded. The order consists of shrubs with opposite or whorled leaves, which are often rigid and evergreen, without stipules. Their properties are generally astringent, and some plants, like the Kalmia and Rhododendrons, are poisonous. The Heaths are most abundant in Southern Africa, especially at the Cape of Good Hope, and most of the brilliant and elegant species of our hot-houses are brought from that region. Our native plants of this family often cover large tracts of country, clustering in such multitudes over them, that the heath land owes its name to the heather which covers it.

1. HEATH (*Erica*).—Calyx deeply 4-cleft; corolla bell-shaped, or egg-shaped, 4-cleft; stamens 8; capsule 4-celled. Name from the Greek, *erico*, to break, from some fancied medicinal properties.

2. LING (*Callúna*).—Calyx of 4 coloured sepals, which are longer than the corolla, having at the base outside 4 green bracts; corolla bell-shaped; stamens 8; capsule 4-celled. Name from the Greek, *callino*, to cleanse or adorn, either from the use of its twigs in brooms, or for the beauty of its flowers.

3. MENZIÉSIA.—Calyx deeply 4—5-cleft; corolla inflated; stamens 8—10; capsule 4—5-celled. Named in memory of Archibald Menzies, a Scottish botanist.

4. AZÁLEA—Calyx deeply 5-cleft; corolla bell-shaped, 5-cleft; stamens 5; anthers bursting lengthways; capsule 2—3-celled and valved. Name from the Greek, *azáleos*, parched, from the nature of the places on which it grows.

5. ANDRÓMEDA.—Calyx deeply 5-cleft; corolla egg-shaped or bell-shaped, with a 5-cleft reflexed border; stamens 10; anthers with two awns at the back; capsule dry, 5-celled.

6. STRAWBERRY-TREE (*Árbutus*).—Calyx deeply 5-cleft; corolla egg-shaped, falling early; stamens 10; fruit 5-celled, many-seeded. Name from *ar*, rough, and *boise*, a bush, in Celtic.

7. BEAR-BERRY (*Arctostáphylos*).—Calyx deeply 5-cleft; corolla egg-shaped, falling early; fruit fleshy, 5-celled, one-seeded. Named from *arctos*, a bear, and *staphule*, a grape, in allusion to the fruit.

1. HEATH (*Erica*).

* *Corolla globose or cup-shaped, stamens included.*

1. Ciliated Heath (*E. ciliáris*).—Leaves 4 in a whorl, egg-shaped, downy above, fringed with hair, the margins rolled over; flowers in terminal one-sided racemes; anthers without awns; mouth of the corolla oblique; perennial. This plant is far more beautiful than any other of our native heaths, having, in June and July, bright crimson flowers of exquisite oblong form, and half an inch in length, growing down the upper part of its stem, while the sepals are most delicately fringed with hairs. The stems are long and straggling, and the foliage of rich green. It is a very local plant, growing on heaths, as at Carclew, in Cornwall, and about Wareham, Dorsetshire. On one or two of the Cornish heath-lands it is as plentiful as the purple species, *E. cinérea*, is in England generally. A hybrid between this species and the next occurs, and is known as var. *watsoni*.

2. Cross-leaved Heath (*E. tétralix*).—Leaves 4 in a whorl, narrow, fringed; flowers in terminal heads; flower-stalks white with down; perennial. This species is, during July and August, very delicate and pretty, with its drooping cluster of pale pink, wax-like flowers, which are almost white beneath. It is scarcely excelled in loveliness even by the beautiful Heaths cherished in our greenhouses. It is abundant on moors and bogs, sometimes blooming on till late in autumn, having the lower part of its stem much branched, and very leafy, its younger leaves downy on the upper surface, and its style usually included within its pink bell. The arrangement of the stamens and pistil is very similar to that of the Whortleberry, already described; but instead of the anthers opening at their tips, those of *E. tetralix* open by side slits. As the whole series of anthers are pressed close together round the style, these orifices are effectually closed, until the effort of a bee to reach the honey presses upon the awns and dislocates the anther-union, with the result that the pollen falls upon the bee's face.

3. Mackay's Heath (*E. mackáii*).—Leaves 4 in a whorl, egg-shaped, fringed, smooth above, almost white beneath; flowers in heads somewhat

1. CILIATED HEATH.
Erica ciliaris.
2. CROSS LEAVED H.
E. tetralix.
3. MACKAYS H.
E. mackayi.
4. PINE LEAVED H.
E. cinerea.
5. CORNISH H.
E. vagans.
6. MEDITERRANEAN H.
E. mediterranea.
7. COMMON LING.
Calluna vulgaris.

umbellate; flower-stalks nearly smooth. This species much resembles the last, its broad egg-shaped leaves with their upper surface and midrib smooth being the most marked distinction. The stem is irregularly branched below, and the flowers, which appear in July and August, are smaller, and of a deeper purple than the last. It has been found in Galway, Ireland, and is regarded by Hooker as a sub-species of *E. tetralix*.

4. **Fine-leaved Heath** (*E. cinérea*).—Leaves in threes, very narrow, smooth; flowers egg-shaped, in crowded, whorled, leafy clusters; perennial. It is to the beautiful drooping reddish-purple bells of this species, mingled with the paler purple flowers of the Ling, that the wide heath-lands of England and Scotland owe most of their summer beauty, and present the rich hue which may be descried miles away. These two plants are usually included in the term Heather, though many botanical writers use that word as relating only to the Ling. Our fathers probably intended either by their word Hadden, which is the old name for Heather; and until late years, the Ling was placed in the Heath genus, and termed *Erica vulgaris*. Mr. Thompson, remarking of the Heaths in general, says: "These plants, as their names imply, are found always on bog soil, and the component parts of that earth may be taken as similar everywhere, yet it cannot be denied that the Heaths of different contiguous hills are extremely different both in kind and degree. Red Heather (*E. cinérea*) is the only species found for miles together on the greywacke of the Isle of Man; *E. tétralix* the only species for several hundred yards on Blackstone Edge; the Ling is the only species for miles on the granite of Goat-fell, in the Isle of Arran. Each of these species may be seen in sufficient quantity wherever bog soil is found, but they may reasonably be claimed by those districts only where with equal climates they are produced in greatest luxuriance; and few observers of the common features of a landscape can have failed to notice the great diversity of character in these universal natives of our moors, on the different geological arrangements of the country. Few can have omitted to remark the total want of them on bogs whose substratum is chalk or mountain lime; and many have been delighted with their abundance and surpassing beauty on the primitive ranges of Wales and Scotland. The Ling of Pont Aberglaslyn, near Beddgelert, yields to none in the richness of its flowers; and that of the gravel range of Avan, in the Frith of Clyde, is often three and a half feet in height, arborescent and erect, like the finest specimens of Cape Heaths cultivated in our greenhouses. The poor natives of that island make an economical substitute for hemp from its twigs; and the roots occasionally thrown out of the soil by the mountain torrent are two inches in thickness, and capable of a high polish, being nearly as hard as ebony. The Cape of Good Hope itself, which has supplied our exotic collectors with nearly 300 species of this genus, is one of the finest granite ranges in the world."

Heather tall and stout like this is rare, but everyone can recall wide tracts of land which the plants cover in great luxuriance, especially in Scotland, which the poet has distinguished as the

"Land of brown Heath and shaggy wood."

Heath is the most social of plants, and it has been said that if other plants

were to occupy the surface of the earth in the same proportion, there would not be room for more than five thousand species; though now, as Humboldt observes, it is probable that the actual number of species exceeds that spoken of in the old myth of Zendavesta, which tells that the primeval creating Power called forth from the blood of the Sacred Bull 120,000 different forms of plants.

The aspect of the Heath vegetation is remarkably striking, the Fine-leaved Heath and Ling being the representatives in our land of the large family of *Ericaceæ*, so numerous in southern regions, that in South Africa it quite determines the character of the vegetation. Immense tracts of land also in the north of Europe are quite covered with Heather, which often grows so close that no other plant can find room on the soil; though on other parts it is somewhat less dense, and there bushes of juniper, andromeda, and ledum, take the place of our furze and broom, while immense quantities of bog moss and hair moss form a thick turfy carpet. It always grows on what is termed by agriculturists a sour soil, just such a soil as will admit of no culture, and this soil is abundant in Northern Europe.

But the Heath family has in the northern hemisphere but few representatives; the Cape of Good Hope may be called the country of the Heaths, though in the extreme south of Europe, and also in the Isle of Teneriffe, most beautiful arborescent species grow to a great height. Meyen says, that these have in their general effect a great resemblance to certain forms of a fir-tree tribe, their small needle-like leaves being, however, beautifully adorned by masses of elegant flowers, which are often of the most brilliant colours. Mr. Bunbury, in his "Report on his Botanical Travels in South Africa," says, that the *Ericaceæ* of the Cape, which in their own country are not less beautiful than in our hot-houses, fall into three divisions, according to their locality. Some grow in company in great masses, like the European Heaths, and cover large spaces; others, though very abundant, yet vegetate in a scattered manner among other plants; and, finally, there are species which are only found singly here and there in a cleft of the rock. He tells us that *E. cerinthoides* has the widest area, and is even found eastward of Grahamstown.

But we must return to our common Fine-leaved Purple Heath, which, however, may be found on rare occasions decked with bells white as snow, save where they are varied by the little black-tipped anthers. The cottagers whose dwellings are about the moors use it for many domestic purposes, and many a lowly home of worth and piety on Scottish moorland bids defiance to the bleak winds and storms by its well-woven thatch, made wholly of heather or of straw, bound down by a lattice-work of twigs. The cottage walls, too, are sometimes formed of alternate layers of heath and a cement made of black earth and straw—for black earth is always to be found where heather blooms, and where it has from time to time given its decayed remains as a manure to the soil. Many a hardy Highlander asks no softer couch than a strewing of heather; and even little children learn to turn the plant to good account, by twisting it into a strong sort of rope. In many of the Western Islands yarn is dyed of a yellow colour by means of its young twigs and flowers; and woollen cloth, first boiled in alum-water and then

immersed in this decoction, becomes of a bright golden yellow. The Heath, too, is very astringent, and is sometimes used in tanning leather. Leather is said to become sooner saturated with heath-tan than with that made of bark; and in 1776 the discovery of its use was laid before the House of Commons in Ireland, and the account was ordered to be printed.

Old traditions, still extant in Ireland, tell that the Danes made beer of the Heath, but Boethius relates this of the Picts. The historian says, that in the deserts and moors of the realm there grows a herb named Heather, which is very nutritive to beasts, birds, and especially to bees, and which in the month of June produces flowers as sweet as honey, and that of this the Picts made a delicious beer. The manner of making the heather beer perished with the extermination of the Picts, as they never showed it to any except to those of their own blood. Leyden adds, that the traditions of Teviotdale say, that when the Picts were exterminated, a father and son alone remained after the slaughter, and that being brought before Kenneth the Conqueror, life was offered to the father on condition of his revealing the secret of making this liquor; and the son was put to death before his eyes in order to induce the old man to consent. This very exercise of cruelty, however, determined him more resolutely to keep the secret from the conqueror, and he said, "Your threats might have influenced my son, but they have no effect on me." The king then suffered the Pict to live, and the secret remained untold.

A recent writer, referring to this, says, "It is just possible that the grain of truth contained in this tradition may be, that all the northern nations, as the Swedes still do, used the narcotic gale (*Myrica galé*), which grows among the Heather, to give bitterness and strength to their barley beer; and hence the ignorant believe that the beer was made chiefly of the Heather itself. While we write, a newspaper paragraph has come under our eye, which states that a 'Mr. Harper, of Galway, shows to his visitors a large amount of bottled beer, manufactured by a metropolitan house from wild Heath.' We should put more faith in this paragraph if the author or brewer would be good enough to substitute the word 'flavoured' for 'manufactured.' A liquid, called heather beer, was commonly made in the Highlands some years since, and as the verse says—

> 'Sir Geoffrey the bold of the cup laid hold
> With heath-ale mantling high.'"

A Highland friend of the author assures her that in summer-time his father, a Scottish clergyman, commonly brewed a liquid so called, and of which the ingredients were gathered from a neighbouring moor. As this gentleman, however, cannot remember the exact mode of making it, it is not improbable that the bitter and narcotic bog-myrtle may have entered into its composition. He says of this beer, that it was very pleasant in flavour, brisk and sparkling, but that unless drunk almost immediately after the brewing it became very sour.

Our red or purple Heather is indeed a boon to bees, but some persons say that honey made from it is narcotic—it is certainly of a dark hue. The enormous number of blossoms to the square yard of heath plants furnishes

an unfailing supply, and the bees work upon it in swarms throughout the hours of sunshine. Leyden, in his lines on the flower, refers to its use to the insect race :—

"The tiny heath-flowers now begin to blow,
The russet moor assumes a richer glow,
The powdery bells that gleam in purple bloom,
Fling from their scented cups a sweet perfume ;
While from their cells, still moist with morning dew,
The wandering wild bee sips the honey'd glue,
In wider circle makes the liquid hum,
And far remote the mingled murmurs come.

"When, panting, in his shepherd's plaid involved,
At noon the listless shepherd lies dissolved,
'Mid yellow crow-bells on the riv'let's banks,
Where knotted rushes twist in matted ranks,
The breeze that trembles through the startling bent
Sings in his pleased ear of sweet content.

"Sweet modest flower ! in lonely deserts dun,
Retiring still from converse with the sun,
Whose sweets invite the soaring lark to stoop,
And for thy cells the humid dew-bell scoop ;
Though unobtrusive all thy beauties shine,
Yet boast thou rival of the purple vine !
For once thy mantling juice was seen to laugh
In pearly cups which monarchs loved to quaff,
And frequent wake the wild inspired lay
On Teviot's hills beneath the Pictish sway."

The Heath is the *Heide* of the Germans, and by the French the different species, with the Ling, are included in the name of *Bruyère*. In Italy the plant is called *Erica*, and in Spain *Brezo*. The Scripture writers refer to the Heath : "And he shall be like the Heath in the desert," was the comparison of the prophet Jeremiah. But the Heath is so rare a plant in Palestine that there is little doubt but that the juniper was intended.

* * *Corolla bell-shaped, or shortly tubular ; anthers protruded.*

5. **Cornish Heath** (*E. vágans*).—Leaves 3 or 4 in a whorl, crowded, very narrow, smooth ; flowers bell-shaped, shorter than the stamens, forming a leafy regular tapering cluster ; anthers without awns ; perennial. This plant, which is well distinguished when in flower by its truly bell-shaped corolla, is very abundant on heaths in the west of Cornwall. The Rev. C. A. Johns says of it :—"The stems are much branched, and in the upper parts very leafy, and from two to four feet high. The flowers are light purple, rose-coloured, or pure white. In the purple variety the anthers are dark purple ; in the white, bright red ; and in all cases they form a ring outside the corolla until they have shed their pollen, when they droop to the sides. On the Goonhilley Downs in Cornwall, all these varieties of the Heath grow together in the greatest profusion, covering many hundreds of acres, and almost excluding the two species so common elsewhere." It flowers from July to September. The stamens in this and the next species are not arranged with the anthers pressed against the style ; in consequence they are not awned, the more open, bell-shaped corolla making the mechanism of the bottle-shaped species less useful. The two anthers of each stamen are quite distinct, being mounted on short branches

of the filament; they open by a large orifice at the end, and so resemble scoops.

6. **Mediterranean** or **Irish Heath** (*E. mediterránea*).—Leaves 4 in a whorl, linear, smooth, flat above, convex, with a central furrow below; corolla cup-shaped, twice as long as the calyx; anthers without awns; flowers in leafy racemes; bracts above the middle of the flower-stalk; perennial. This plant, which is common in our gardens, and which there grows slowly to a large size, has, even when wild, a stem from two to five feet high, with many upright rigid branches; these terminate in flesh-coloured flowers about twice as long as the calyxes, the latter are also coloured. It is found on mountain bogs in the west of Mayo and Galway, Ireland, and on a few other spots in this kingdom. The plants which we have in the garden were introduced here from Spain long before it was known to be a native of this kingdom.

2. Ling (*Callúna*).

Common Ling, or **Heather** (*C. vulgáris*).—Leaves small, more or less downy (in one variety hoary), arranged in 4 rows on opposite sides of the stem and branches, each leaf having 2 small spurs at the base; corolla small, bell-shaped, shortly-stalked, drooping, nearly sessile; perennial. This plant, which is very abundant on heaths and moors, is a small shrub, with tiny bright-green leaves, and its little flowers of a rich purplish-lilac are very numerous and beautiful in July and August. The flowers remain on the plant long after the seed has ripened, and will preserve their colour not alone on its rigid branches, but long after being gathered, often forming a bouquet for the winter mantelpiece. It is an exceedingly beautiful plant, varying from a slightly downy condition to an absolute hoariness of foliage, and occasionally bearing white blossoms. It is not often that the foliage is white with down, but Mr. George Luxford relates that, on one occasion, when visiting Mosely Common soon after dawn, his attention was arrested by the appearance of water at a spot where on a previous visit he knew that he had not seen any. On arriving at the place, he found that this appearance was occasioned by the reflection of the rays of the morning sun on a very heavy dew lying on the hoary Ling which at that place quite covered some gently-sloping ground. "*Callúna vulgaris*, in all its states," says this botanist, "is a very elegant plant. The red and the white-flowered varieties, with their smooth, deep green, closely imbricated leaves, are pretty and delicate; the hoary one is very beautiful, although not possessing the exquisite silvery appearance of the stems and under side of the leaves of the lady's mantle and hoary cinquefoil; but of all the varieties the pre-eminently lovely one is that with double red flowers. This variety is found wild in Cornwall; a specimen in my herbarium has its branches covered for nearly its whole length with the crowded flowers, and sweeter resemblances of wreaths of roses cannot be conceived." The Ling is always one of the most ornamental plants in our British herbarium; we scarcely know of any other which so well preserves the tint both of its flowers and foliage for many years.

The Ling grows in abundance on barren Alpine moors, where scarcely any other plant is to be found. It occurs in every part of Europe, and is

extremely profuse in the northern countries. Linnæus mentions, in his "Flora Lapponica," that in some districts through which he travelled scarcely any plant was seen save the Heather, which so covered the ground as to render its extirpation impossible. The country people had, he says, an idea that there were two plants which would finally overrun and destroy all the earth: these were Heather and tobacco.

The caterpillar of the great egger moth (*Bombyx quercus*) feeds on the foliage of the Ling, and the branches afford shelter to grouse and other birds of the moorland, while they, as well as the birds of song, find many a meal in the seeds, which, well secured in their little seed-vessels, remain long on the plant. Sheep and goats sometimes browse on the Heath and Ling, and the latter is commonly made into brooms. It is said that several Highland lairds derive no small proportion of their revenues from the Heather, which is sold throughout the kingdom when made up into these domestic implements. The turf with the heath growing upon it is often cut up and dried for the winter fuel of the cottager, or is pulled up for heating ovens, and for immediate use. Robert Nicholls, who in early days was wont to pull the Ling to add to the comforts of the Scottish home, thus records the simple pleasure of the Heather-gathering:—

"I like to pu' the Heather,
We're aye sae mirthful, where
The sunshine creeps atour the crags
Like ravell'd golden hair:
Where on the hill tap we can stand
Wi' joyful heart I trow,
And mark ilk grassy bank and holm
As we the Heather pu'.

"I like to pu' the Heather
Where harmless lambkins run.
Or lay them down beside the burn
Like gowans in the sun;
Where ilka foot can tread upon
The Heath-flower wet wi' dew,
When comes the starmie o'er the hill
While we the Heather pu'."

3. MENZIESIA (*Menziésia*).

1. **Scottish Menziesia** (*M. cærúlea*).—Leaves numerous, scattered, linear, minutely toothed; flower-stalks covered with glandular hairs; flowers 5-cleft, and with 10 stamens, forming terminal tufts; perennial. This is a small branched shrub, naked below, but very leafy above, and bearing, in June and July, large beautiful cup-shaped flowers of pale purplish-blue. It is common in North America, but rare in this kingdom, having been found on the Sow of Athol, in Perthshire, whence it is said to have been almost extirpated. By some authors this species is placed in the small genus *Phyllodoce*.

2. **Irish Menziesia, or St. Dabeoc's Heath** (*M. polifólia*).—Leaves egg-shaped, with the margins rolled back, white and downy beneath; corolla 4-cleft; stamens 8; perennial. This shrub bears, in July and August, terminal leafy one-sided clusters of most beautiful large flowers, usually of a purple colour, but sometimes of wax-like whiteness, which hang drooping on short stalks. The bushy stems are about one or two feet long, and become prostrate after a time. It grows, though rarely, on some mountainous heaths of Ireland, and is abundant in Connemara. This species constitutes the genus *Dabeocia* of D. Don, under which name some writers describe it.

1. SCOTTISH MENZIESIA. *Menziesia cærulea*
2. HUDSON'S *M. polifolia*
3. TRAILING AZALEA. *Azalea procumbens*
4. MARSH ANDROMEDA. *Andromeda polifolia*
5. AUSTERE STRAWBERRY TREE. *Arbutus unedo*
6. BLACK BEAR-BERRY. *Arctostaphylos alpina*
7. RED BEAR-BERRY. *Arva-ursi*

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4. Azalea (*Azálea*).

Trailing Azalea (*A. procúmbens*).—Stems woody, prostrate and tangled; leaves leathery and evergreen, small, smooth, and rigid, with the margins remarkably rolled back; flowers in short terminal tufts or clusters of 2 or 3; perennial. This, which is a plant of dry moory places, has little beauty which can compare with the showy Azaleas of our gardens and greenhouses. Its little clustered flowers, which appear in May and June, have red sepals and pink corollas, and its stiff leaves are dark green. It occurs, so far as these islands are concerned, only in the Highlands from Ben Lomond to Shetland, the altitude of its stations ranging from 1,500 to 3,600 feet. But China is the land in which the Azaleas are to be seen to perfection. Mr. Fortune says: "Most people have seen and admired the beautiful Azaleas which are brought to the Chiswick fêtes, and which, as individual specimens, surpass in most instances those which grow and bloom on their native hills; but few can form any idea of the gorgeous and striking beauty of these Azalea-clad mountains, where, on every side as far as our vision extends, the eye rests on masses of flowers of dazzling brightness and surpassing beauty. Nor is it the Azalea alone which wins our admiration; clematis, wild-roses, honeysuckles, the glycine, and a hundred others mingle their flowers with them, and make us confess that China is indeed the 'central flowery land.'" One of the species, *A. póntica*, has acquired a great celebrity from having been believed to be the *Ægolethron* of the ancients. The disease which afflicted the army of Xenophon, in the celebrated retreat of the Ten Thousand, was supposed to have been caused by the honey made from the flowers of this plant. They exude a sweet juice, which is said to have intoxicating properties, and the honey gathered on the shores of the Euxine or Black Sea is at the present time believed to be deleterious from the same cause. Desvaux separated this plant from the Azaleas, and of it constituted the monotypic genus *Loiseleuria*, which is retained by some authorities.

5. Andromeda (*Andrómeda*).

Marsh Andromeda (*A. polifólia*).—Stem woody, prostrate below; leaves leathery, narrow lance-shaped, pointed, their margins rolled, glaucous below; flowers drooping, in terminal tufts; perennial. This plant, which grows in peaty bogs in Wales, Somerset, Norfolk, the North of England, and in Scotland, has several local names. It is called Wild Rosemary, Poly-mountain, Moon-wort, and Marsh Holy-rose. Linnæus, who had a fanciful imagination, gave it its name of Andromeda, because the plants of this genus grow on Alpine bogs and sea-marshes, and being thus, as he deemed, chained to rocks and dreary places, and surrounded by monsters of the deep resembled the fabled Andromeda of ancient poetry. The drooping flowers, which appear from May to September, are pale purplish, and pitcher-shaped. The stamens, which are entirely within the corolla, have bearded filaments, and the anthers are awned. The plant is more frequent in the north of Europe than in these islands, and is common in Sweden, Denmark, Switzerland, and Germany, as well as on the bogs of North America. A decoction

of this plant is said by Gmelin to be very intoxicating, and to be used in Siberia as an inebriating liquor. The plant is also very acrid, and sometimes proves fatal to sheep. Another species, which grows in the United States, *A. mariána*, is so commonly injurious to these animals, that it has acquired the popular name of Stagger-lamb, or Stagger-bush, because it produces a disease in which they are seized with fits of trembling; while the *A. ovifolia* is said to cause the death of young goats which browse upon its shoots. Our Marsh Andromeda contains some quantity of tannin, and has been used instead of nut-galls. In Lapland large tracts of land are covered as with a moss by the *A. hypnoides;* and both in the north of Europe and America several species are used medicinally. The tree Andromeda, found in the valleys of the Alleghany Mountains, is called Sorrel-tree, from its acid leaves, which are used by the hunters to allay their thirst, and from which a slightly acid drink is procured to relieve the thirst in ardent fevers. Sir J. D. Hooker found the *A. fastigiata* in such abundance on the mountains of Nepal, that he terms it the Himalayan heather. He says it makes good fuel.

6. Strawberry-tree (*Arbutus*).

Austere Strawberry-tree (*A. unedo*).—Stem woody; leaves elliptical, tapering, serrated, smooth; flowers in drooping panicles; fruit rough. No one who has ever visited the Lakes of Killarney can have failed to observe how much their beauty is enriched and varied by the large dark masses of Arbutus which grow about their shores. Were the traveller, indeed, sufficiently unobservant to pass them without remark, the boatmen would most surely call his attention to their loveliness; nor would the visitor fail to be invited to the purchase of some little box, or set of chess-men, or bracelet, made of the beautifully-veined wood of this handsome tree. Mrs. S. C. Hall remarks: "The tourist on approaching the Lakes is at once struck by the singularity and the variety of the foliage in the woods that clothe the hills by which, on all sides, they are surrounded. The effect produced is novel, striking, and beautiful, and is caused chiefly by the abundant mixture of the tree-shrub, *Arbutus unedo*, with the forest trees. The Arbutus grows in nearly all parts of Ireland, but nowhere is found of so large a size, or in such rich luxuriance, as at Killarney. The extreme western position, the mild and humid atmosphere—for in Ireland there is fact as well as fancy in the poet's image—

> "Thy suns with doubtful gleam
> Weep while they rise,"

and the rarity of frosts, contribute to its propagation, and nurture it to an enormous growth, far surpassing that which it attains in any part of Great Britain, although, even at Killarney, it is never of so great a size as it is found clothing the sides of Mount Athos. In Dinis Island there is a tree the stem of which is seven feet in circumference, and its height is in proportion, being equal to that of an ash-tree of the same girth, which stands near it. There are several others nearly as large, and we believe one or two larger. Alone, its character is not picturesque; the branches are bare, long, gnarled, and crooked, presenting in its wild state a remarkable contrast to its trim-formed and bush-like figure in our cultivated gardens. Mingled with

other trees, however, it is exceedingly beautiful, its bright green leaves happily mixing with the light or dark drapery of its neighbours—the elm and the ash, or the holly and the yew, with which it is almost invariably intermixed. It strikes its roots apparently into the very rocks, thus filling up spaces that would otherwise be barren spots in the scenery. Its beautiful berries, when arrived at maturity, are no doubt conveyed by the birds who feed upon them to the heights of inaccessible mountains, where they readily vegetate in situations almost destitute of soil."

The Arbutus is said to have been introduced to the shores of the Lakes by the monks of Muckross Abbey, but most of our botanists consider that it is truly wild on that spot, though probably not so in other parts of Ireland. It is a native of the mountainous regions of Southern Europe, as well as of Northern Africa, and of many parts of Asia. The ancient poets often alluded to the tree: thus, Horace says—

"Now stretch'd beneath the Arbutus' green shade;"

and Virgil's direction is familiar to the classic reader—

"With leafy Arbutus your goats supply."

The tree during September and October bears very pretty greenish-white, wax-like bells, while the large red fruits of the last year are at the same time on the bough, and only now attaining their rich red ripeness. Bishop Mant refers to its autumnal beauty:—

"Go where the mountain bugle wakes
The echoes of Killarney's lakes,
And Glena's waving crags incline
O'er sainted Mucruss' Abbey shrine,
The Arbute opes its pensile bells:
All beautiful itself, it tells,
In concert with the fading woods,
Of winds and equinoctial floods,
Which soon their gather'd rage shall pour;
And beauty on that distant shore
Forsaken, left to bloom alone,
Unnoticed on her desert throne."

We need hardly describe the dark orange-red fruit, covered with hard tubercles formed by the seeds, and as large as a cherry, to whose resemblance to the strawberry the plant owes one of its familiar names, though it is more often called Arbutus. This word is traced to the Celtic *Ar-boise* (Austere Bush), because of the harshness of the fruit; and we find traces of this word in the names by which the shrub is known in several of the continental countries. The French call it *Arbousier;* and it is the *Arbutus* of the Dutch, and the *Arbuto* of the Italians. The Spaniards call this evergreen *Madrona*, and the Germans *Landbeere;* and in Constantinople it is termed *Komaria.* It is rather amusing to find the plant called by our old writers Cain-apple, perhaps because the colour reminded them of the blood shed by the first murderer. Pliny says that the name *Unedo* (One I eat) was given because the fruit was not sufficiently good to tempt the taster to try a second. Parkinson remarks of this plant: "Amatus Lusitanius, I thinke, is the first that ever recorded that the water distilled of the leaves and flowers thereof

should be very powerfull agaynst the Plague and poysons; for all the ancient writers doe report that the fruit hereof, being eaten, is an enemy to the stomacke and head. And Clusius likewise setteth downe that at Lishbone, and other places in Portingall, where they are frequent, they are chiefly eaten of the poorer sorte, women and boys." In the neighbourhood of Killarney the berries are commonly gathered, and offered in baskets for sale. They are, when fully ripe, perfectly wholesome, although their somewhat astringent properties would render it undesirable to eat very large numbers of them at one time, and in a half-ripened state they are very injurious. The flavour is to many people very pleasant, and in the warmer climates of the south is probably better than in this. In the markets of the south of Europe Arbutus berries are commonly exposed for sale; and the tree is abundant and beautiful in Italy, though it is not even there so luxuriant as on the limestone rocks of Killarney.

The rich green glossy leaves of this tree have been used by tanners in the preparation of leather; and sugar, wine, vinegar, and a spirituous liquor, have also been procured from the berries. In Corsica, for instance, the berries are converted into a wine, of which it is said, but not by way of recommendation, that it retains the properties of the fruit. Some of the exotic species of Arbutus are larger and handsomer than the common kind; and Baron Humboldt mentions one (*A. petiolâris*), the leaves of which are infested by the caterpillars of a moth which afford a silk, used in Mexico in various manufactures.

7. Bear-berry (*Arctostáphylos*).

1. **Black Bear-berry** (*A. alpina*).—Stem prostrate; leaves wrinkled, serrated, inversely egg-shaped, netted with veins; flowers in terminal racemes; perennial. This plant, which is only found on the dry barren spots of many of the Highland mountains from Forfar and Perth to Shetland, has a long, woody, trailing stem. The flowers, which appear in May, are pitcher-shaped, white, and tinged with a flush of delicate rose-colour. In autumn the foliage is of a beautiful rich red hue, and the berries black; the leaves remain through the winter.

2. **Red Bear-berry** (*A. uva-ursi*).—Stems prostrate; leaves inversely egg-shaped, entire; clusters terminal; perennial. This is an abundant plant on the mountainous heaths of the north. It is a small evergreen shrub, with tough woody stems and rigid glossy leaves, having rolled margins. The flowers, which expand in May and June, grow in crowded clusters, and are of a bright rose-colour; and the berries which succeed them are small and round, of a bright scarlet colour. They are mealy, and too dry and austere to be very pleasant, but are eaten by children with relish, and form the common food of the moor-fowl on the rocky heathy places where they abound. Dr. G. Johnston tells us that in Berwickshire these fruits are called Rapperdandies. They are used medicinally by the Highlanders, and their value as an astringent has been confirmed by the testimony of medical practitioners; they are also sometimes gathered for the purpose of tanning.

Order LI. MONOTROPEÆ—BIRD'S-NEST TRIBE.

Sepals 2—6, not falling off; corolla regular, deeply divided into as many lobes or petals as there are sepals; stamens twice as many as the lobes of the corolla; anthers opening by pores; ovary 4—5-celled, sometimes imperfectly so; style 1, often bent; stigma usually lobed; fruit a dry capsule; seeds chaffy, numerous. This order contains but three British genera, and no plants of any economical importance, though the *Pýrolas* are very pretty and fragrant flowers. The leaves are simple, smooth, veined, and often evergreen.

1. MONESES (*Monéses*).—Petals slightly connected at the base; filaments awl-shaped; stigma 5-cleft; margins of the valves of the capsule without any web. Name from *monos*, one, or alone, from the solitary flowers and combined petals.

2. WINTER-GREEN (*Pýrola*).—Petals 5, distinct; filaments awl-shaped; stigma 5-lobed; margins of the valves of the capsule connected by a web. Name from *Pyrus*, a pear, from a fancied similarity between its flowers and the pear blossom.

3. BIRD'S-NEST (*Monótropa*).—Sepals 4—5; petals 4—5, swollen at the base; stamens 8—10; anthers 1-celled; stigma flat, not lobed. Name from the Greek *monos*, one, and *trepo*, to turn, because the flowers all turn one way.

1. MONESES (*Monéses*).

Large-flowered Moneses (*M. grandiflóra*).—Leaves nearly round; flowers solitary, drooping; perennial. This plant, which is also known as *Pýrola uniflora*, is a very lovely though rare ornament of the mountainous pine-woods of Scotland. It is a very singular plant, with scarcely any stem, bearing several roundish, stalked, and slightly serrated leaves, which are smooth and veiny; and having a single flower-stalk, from three to six inches high, which in July has a large, nearly white, sweetly-scented blossom, which, as Sir J. E. Smith observes, is one of the most curious and elegant of British flowers. Dr. E. D. Clarke remarks of it, when in Denmark: "Among the woods of Hunneberg, and beneath the shade of fir-trees, we found that beautiful plant, the *Pyrola uniflora*, rearing its pale, pendent, and solitary blossom near to the base of the mountain. As it was the first time any of us had seen this plant, and as it afforded the first specimen for our botanical collection, the sight of it was a gratification to all of us. The flowers were snow-white, and they had the fragrance of the lily of the valley." Although this species of *Moneses* has been found in the south of France and the north of Italy, it is so truly an inhabitant of alpine regions, that it was never observed in Britain until the year 1783, when it was noticed for the first time in Moray, and in the remotest isles of the Hebrides. Before it expands its cups, the blossoms are of a globular form; and it always hangs its head like a snowdrop.

2. WINTER-GREEN (*Pýrola*).

1. Round-leaved Winter-green (*P. rotundifólia*).—Leaves nearly round, entire, or with the margins slightly notched; flowers in racemes;

style bent down, and curved upwards at the end, much longer than the ascending stamens; perennial. In the variety *arenaria*, which has smaller leaves, the flower-stalk has scaly bracts throughout its whole length, whilst in the typical forms these bracts are few in number. The species of Winter-green are often very difficult of discrimination, but this, which has far larger flowers than the others, is also marked by the length of its style, which exceeds that of the stamens and petals. This and the next species have the style ornamented by a ring below the stigma-lobes. The blossoms, which expand from July to September, are rather numerous, white, and spreading. At Guernsey this plant grows near the sea, among the reeds and damp woods; and bushy places and reedy marshes are the places of its growth; but it is very rare in this country. The plant has slightly astringent properties, and some other species of the genus, as *P. umbellata*, afford an excellent tonic medicine. These plants share with the pretty little *Trientalis* the name of Winter-green, and this has its synonym in various European countries. The French call the plant *Pyrole;* the Germans, *Winter-grün;* the Dutch, *Winter-groen;* the Spaniards and Italians term it *Pirola.* It is the *Vintergrän* of the Danes, and the *Gruscha dikaja* of the Russians.

2. **Intermediate Winter-green** (*P. média*).—Leaves nearly round, or roundish oval, with slightly rounded notches; flowers in racemes; stamens erect, shorter than the straight style, which protrudes a little beyond the flower. The flowers, which expand in July and August, are numerous, and either of snowy-white hue or delicately tinged with rose-colour. They are neither so large as those of the round-leaved species, nor so fully expanded. The plant occurs in woods in the north of this kingdom, as at Keswick in Cumberland, and in some of the woods of Northumberland and York; but it is not a frequent flower in England, and not general in Scotland, though perhaps less rare than either of the other species.

3. **Lesser Winter-green** (*P. minor*).—Leaves roundish oval, notched at the margin; flowers in racemes; stamens erect, as long as the very short, straight style which is included within the corolla; stigma large and rayed; perennial. This species is at once distinguished from the last by its short and included style, and it is altogether a smaller plant. The flowers never seem quite to expand; they are on very short, partial stalks, numerous, and of pale rose-colour, appearing in June and July. The leaves, too, are numerous. It grows in woods and thickets, chiefly in the north of England and Scotland, and is a common plant in the Highlands. It is more generally distributed than either of the foregoing species.

4. **Serrated Winter-green** (*P. secúnda*).—Leaves egg-shaped, serrated; flowers racemed, all leaning one way; stamens bending, and about as long as the long, straight, much protruded style; perennial. This species occurs, though rarely, in the north of England, in mossy woods, and is by no means unfrequent in the fir-woods of Scotland, especially in the Highlands. The greenish-white flowers are small and oblong, almost closed, and droop on their little stalk in July. The stems are straggling and branched, and the leaves numerous. Sir J. D. Hooker found a *Pyrola* in the fir-woods of the Himalaya, blossoming among potentillas and purple primroses.

1. LARGE FLOWERED MONESES
   Moneses grandiflora
2. SERRATED WINTER-GREEN
   Pyrola secunda
3. ROUND-LEAVED W. G.
   P. rotundifolia
4. INTERMEDIATE W. G.
   P. media
5. LESSER W. G.
   P. minor
6. YELLOW BIRDS-NEST
   Monotropa hypopithys

Pl. 139.

3. Bird's-nest (*Monótropa*).

Yellow Bird's-nest (*M. hypópithys*).—Flowers in drooping, or sometimes erect racemes, in one form having the filaments, ovary, and style smooth, in another with these parts hairy; perennial. This plant, which is called also Fir-rape and Pine Bird's-nest, is a very singular one. It is not common in any part of this kingdom, occurring only in some few dry fir and beech woods of England and Scotland. In Monk Wood, near Alton, it is, however, plentiful. It has a stout, erect, succulent stalk, without leaves or branches, but clothed with egg-shaped scaly bracts. This stalk is from six to nine inches high, and has, at its upper part, a cluster of drooping brownish-yellow flowers, which when seen at a little distance look as if withered, but which are very succulent, and finally turn quite black. The flowers have all eight stamens, except the terminal one, which has ten. They appear in June and July. This plant is also known as *Hypopithys multiflora*.

The Bird's-nest has long been considered parasitic on the roots of the fir, and it has much of the general aspect of a parasitic plant; but it is now very generally believed that it is not a parasite, and Mr. Babington considers this circumstance as proved, and describes the plant, "not parasitical." The Bird's-nest is always found near the roots of fir or beech trees, upon whose fallen, decaying leaves it really subsists, taking nothing from the tree but what it has already discarded. Mr. Rylands published, a few years since, in the "Phytologist," the result of long and careful investigation of this subject, and has found that the fibres of the roots of *Monótropa* possess the small openings called spongioles, and that they imbibe their food from the soil in precisely the same way as any other plants. The greater number of specimens of the plant, when taken recently from the soil, present masses of a fibrous substance, closely adhering to the small fibres and the roots of the plants near which they grow. This fibrous substance was believed to form portions of the root of *Monótropa*, but Mr. Rylands, after examining it with the greatest care, was of opinion that in all cases it consisted of a byssoid fungus, which had been formed on the *Monótropa*, but that it had no organic connexion with this plant. The species of fungus varied in different specimens of the Bird's-nest, and were found to be hitherto undescribed.

The word "parasite," when used in reference to plants, is in popular language applied very freely, but the botanist regards as strictly parasitic such plants only as grow on the living parts of other vegetables, and derive their nutriment wholly from them. Mosses, lichens, and some others which merely attach themselves to the surface of other vegetables, taking their food from the atmosphere, from rain and dew, and not from the plants on which they fix themselves, are termed false parasites, or *epiphytes*, though this term is now, in this country, chiefly used in reference to those orchideous plants which hang on trees, but are nourished by the atmosphere. Many plants familiarly called parasites, as the honeysuckle and bindweed, are of course mere climbers, demanding nothing of the plant around which they grow, save that support which the weak may ask of the strong. Of truly parasitic plants, some attack the external parts of other vegetables, and others insidiously introduce themselves to the internal portions, where they grow

until they pierce through the skin, and place themselves so as to receive sun and air. The former are exclusively of the Fungus tribe, and are known by the common names of mildew, rust, brand, etc.; and among the latter are such plants as the mistletoe and the tooth-wort. This kind of parasite is again classed into such as have green leaves, like the mistletoe, performing all the ordinary functions of leaves, and such as have scales of a brown or some other colour, but not green, in place of true leaves, these not having the ordinary function of leaves, or possessing the powers of respiration and assimilation only in a very low degree. The largest leafy parasite of our native flora is the mistletoe. The brown scaly parasites always attach themselves to the roots of plants, like the various kinds of broom-rape and the tooth-wort. One of the most remarkable characteristics of such plants is the absence of all green colour, although exposed to the brightest light. Thus, the broom-rapes grow on open heaths and sea-cliffs in the very broadest sunshine of summer, yet they have no tints save those of dull brown, or purple, and dingy yellow.

Order LII. ILICINEÆ—HOLLY TRIBE.

Sepals 3—6, imbricated when in bud; corolla 4—5-lobed, imbricated when in bud; stamens inserted in the corolla, equalling its lobes in number, and alternate with them; filaments erect; anthers 2-celled, opening lengthwise; ovary fleshy, abrupt, 2—6-celled; stigma lobed, nearly sessile; fruit a berry, not bursting, inclosing 3—6 stony nuts, each containing a seed. This order consists of trees or shrubs with thick leathery evergreen leaves, and small axillary white or greenish flowers. The only European species is the common Holly, the leaves of which, like those of most of the plants of this order, possess astringent properties.

HOLLY (*Ilex*).—Calyx 4—5-cleft; corolla wheel-shaped, 4—5-cleft; stamens 4; stigmas 4—5; berry round, containing 4 seeds, inclosed in a nut-like covering. Name applied by the Latins to some tree, though not to our Holly.

HOLLY (*Ilex*).

Holly (*I. aquifólium*).—Leaves leathery, egg-shaped, acute, shining, waved, with spiny teeth; flower-stalks axillary, short, many-flowered; flowers somewhat umbellate; fruit a globose drupe containing four bony, seeded stones. The beautiful dark glossy Holly is a great ornament to those of our woods in which it occurs in abundance, and attains a goodly size. It is, however, more commonly a large shrub than a tree, yet in the woods of Dumbartonshire there are Holly-trees more than thirty feet high; and the Holly-trees of Needwood Forest, in Staffordshire, have long been renowned for size and beauty. In Bretagne, Holly-trees are often to be seen fifty feet in height; and Bradley records that some of those at the Holly-walk, near Frensham, in Surrey, had attained the height of even sixty feet; while old Hollies, thirty or forty feet high, with very large trunks, are to be found in various parts of this country. In woods where this plant is plentiful, as in some of the southern counties of England, it gives a peculiar feature to the

landscape in winter; for at that season we have no native evergreen which is at all conspicuous, except this and the ivy, and the masses of dark verdure yielded by these plants contrast beautifully with the naked outlines of the branches of the wood, as well as with the light tender green of the budding trees of spring. Its prickly glossy leaves and tough wood render it an excellent plant for hedges, and when Dutch horticulture prevailed in this country, and a certain formality in landscape gardening was generally cherished, many portions of land were inclosed within Holly hedges. Except that it grows slowly, nothing can be better suited for a hedge than the impenetrable boughs of the Holly, lasting through centuries, looking bright at all seasons, and brightest at the darkest, unhurt by wind or weather, and strong enough to resist the sturdiest intruder. A hedge of Holly will, in about twenty years, attain the height of sixteen feet. Evelyn's Holly hedge at Say's Court, which the Czar of Muscovy destroyed during his temporary residence there, had been a source of innocent delight to its owner. It was, says Evelyn, "beautiful at any time of the year, glittering with its armed and varnished leaves, the taller standards at ordinary distances blushing with their natural coral." Bishop Mant, with a heart ever alive to all that is beautiful in Nature, and a ready sympathy with all that is graceful in human feeling, thus refers to it:—

"And such was once thy Holly wall,
Good Evelyn, thick, extended, tall.
Thy hands disposed the seedlings fair,
They throve beneath thy fostering care;
Four hundred feet in length they throve,
Thrice three they rose in height above,
Glittering with arm'd and varnish'd leaves,
Secure 'gainst weather, beasts, and thieves:
Blushing with native coral red,
Refreshment and delight they shed
About thy path; and still diffuse
O'er thy mild page perennial hues.

"But more endear'd,
Good Evelyn, is thy honour'd name
For true devotion's fervent flame,
From wild o'erheated fancies free,
Pure faith and duteous loyalty;
Who, when each tree of noblest kind
For sight, smell, taste, entranced thy mind,
Did still their glorious Author bless;
Nor to His holy volumes less
Devoted in thy green retreat,
And with His Church in union sweet,
Held'st on thy lengthen'd pilgrimage,—
The truly wise, the Christian sage."

Beautiful holly hedges yet remain, which might vie with this renowned one. At Tyningham, the seat of the Earl of Haddington, there is a holly hedge two thousand nine hundred and fifty-two yards in length, varying from ten to twenty-five feet high, with a base from nine to thirteen feet broad.

Many a hardy Holly is scattered over lonely moorlands, such as Dartmoor, or some bleak Highland hill where human hand could never have planted it, though now sometimes it serves as a beacon to the mariner at sea, or to the traveller over pathless wilds. The Holly will thrive in places where the bleak winds would destroy every other tree. On the lofty cliffs near the old and renowned Castle of Dover, and in the grave-yard of the church where our fathers worshipped when the Gospel was first brought to Britain, there is now placed a Holly-tree. Long after the generation who planted it are laid beneath the sod, that tree, reared in memory of the Iron Duke, the hero of many battles, will probably survive in all its greenness, though on that bleak spot scarcely any other tree would outbrave the raving winds which come with the winter from land and sea.

The Holly grows in most of the countries of Middle and Southern Europe, as well as in some parts of Africa and Asia, but in few lands is it so large as in ours. Its timber is very firm and white, and well adapted for many purposes of art. It is often made into screens and work-boxes, which ladies adorn by their paintings; and it is dyed black for ornamental cabinet work, and is little inferior to ebony in hardness and in the high polish of which it is susceptible. It is also stained of various colours for the Tunbridge ware manufactories, and blocks for the engraver are cut out of it, though for the latter purpose it is far inferior to box.

The Holly will thrive on almost any soil, but the people of Italy believe that the plant when growing wild indicates the presence of alum in the earth; and Evelyn said that coals might often be found where the Holly grows. The idea prevailing in Italy arose, as Beckman tells us, from John di Castro. He used alum in dyeing cloth, and having observed that the Holly grew plentifully in the alumine districts of Asia, was induced, when seeing much of the plant in the neighbourhood of Jolfa, to search there also for this salt. He was confirmed in the opinion that alum abounded in his native soil by finding that the earth had an astringent flavour. His discovery led to the first alum works in modern Europe, which were established at Jolfa by means of Pope Pius II., and it led also to the erroneous idea of the connexion between the alum and the growth of the Holly.

The Holly was formerly called Holme, Hulver, or Hulfere. It is still used for whip-handles, and this use of its wood seems very ancient. An old writer says:—

> "They their Holly whips have braced,
> And tough hazel goads have got:

and far earlier we find Chaucer referring to this use:—

> "The bilder oke, and eke the hardie ashe,
> The box, pipetre, the Holme to whippes lasu;
> The sailing firre, the cypres deth to plaine."

It is probable that to its old use of decking churches it owes its name of Holly, which is a corruption of the name Holy-tree, by which the monks called it. Its abundant growth gave the name of Holme Chase to a part of Dartmoor, to Holmwood and Holmbury, near Dorking, and to the Holmesdale Valley, also in Surrey. The plant is still called Holme in Devonshire. In Norfolk it is called Hulver, a name as old as Chaucer's poems, and doubtless much older:—

> "This herbere was full of flowers gende,
> Into the which as I beholde 'gan,
> Betwixt an Hulfere and a woodbende,
> As I was ware, I saw where lay a man."

Skinner suggests that this name is either from the English word *hold*, and the Anglo-Saxon *feor*, long—a plant that lasts long—or from "hold fair," because it keeps its beauty all the year. The plant is in France called *Le Houx*, and is the *Stechpalme* of the Germans, the *Agrifoglio* of the Italians, and the *Acebo* of the Spaniards. The specific name *aquifolium* signifies needle-leaved. The Persians have a fancy that the Holly-tree casts no shadow; and they consider an infusion of its leaves as fitted to be applied

1 COMMON HOLLY
Ilex aquifolium

2 PRIVET
Ligustrum vulgare

3 COMMON ASH
Fraxinus excelsior

4 LESSER PERIWINKLE
Vinca minor

5 GREATER P
V major

Pl. 140.

o several sacred purposes. They also sprinkle it on the face of a new-born nfant. Pliny tells of many superstitions concerning this shrub; he says, in he words of his translator, "As touching the Holly or Hulver-tree, if it be planted about a house, whether it be within a citie or standing in the countrey, it serveth for a counter-charm, and keepeth away all ill spells and enchantments." Among the other remarkable things connected with the plant, the Roman naturalist relates that its flowers would cause water to freeze, and that it repelled poison; while, if a staff of its wood were thrown to any animal, even if it fell short of touching it, the animal would be so subdued by its influence that it would return and lie down by it.

In our days the Holly has an associated interest, and is dear to us all as emblematic of the season of festive enjoyments, of household gatherings, and of the joyous thanksgivings of the sanctuary for the greatest of all gifts ever bestowed on fallen man. Many a young heart bounds with joy at the sight of its glistening berries, while the eyes of older persons are filled with tears as they recall the looks and voices of those who are gone, and who were wont to gather with them around the Christmas fire. Country people, indeed, commonly call the Holly-bough "Christmas," from the season which it adorns. The custom of decking houses and churches with the plant is one of high antiquity. It seems most probable that it was derived from the practice of the Romans, who at that season sent boughs to their friends during the festival of the Saturnalia. In many cases, customs of this kind were gradually adopted by the early Christians, and connected with their own faith. Houses and temples were then decked with holly, and Christmas Eve was marked in the Calendar as "*Templa exornantur*"—"Churches are decked":

"And there are they who on this social eve
Its old observances with joy fulfil,
Their simple hearts the loss of such would grieve,
For childhood's early memory keeps them still,
Like lovely wild-flowers by a crystal rill,
Fresh and unfading; they may be antique,
In towns disused; but rural vale and hill,
And those who live and die there, love to seek
The blameless bliss they yield, for unto them they speak.

"And therefore do they deck their walls with green;
There shines the Holly-bough with berries red;
There too the yule-log's cheerful blaze is seen
Around its genial warmth and light to shed;
Round it are happy faces, smiles that spread
A feeling of enjoyment calm and pure,
A sense of happiness home-born, home-bred,
Whose influence shall unchangeably endure
While Home for English hearts has pleasures to allure."

Sheep browse on the leaves of the Holly, and the deer and rabbit feed on them in winter. They abound in a glutinous substance, which is used in making bird-lime, and the bitter principle of both leaves and bark has been of service in intermittent fevers. Dr. Rousseau, of Paris, made very extensive experiments on the decoction of Holly, and discovered therein the existence of a hitherto unknown principle, called ilicine, which appears to be of more service in some cases than even Peruvian bark. Some species of

Ilex yield, in other countries, important medicines; the *Ilex vomitória* affords the celebrated Apalachian Tea of North America, which the Indians assemble to drink in large draughts medicinally. No less renowned is the *I. paraguénsis*, the *Yerb maté*, or Jesuit's Tea, of Paraguay, which forms a favourite infusion, drunk at all times of the day by natives of Paraguay, La Plata, Peru, and Quito, and which is made, like our tea, by putting a handful of leaves into a teapot, and pouring boiling water upon them. The Creoles are so fond of this beverage that they never travel without some of the maté leaves. More than five millions of pounds of this tea are annually exported from Paraguay. The natives boast of the innumerable excellences which the tea possesses; and it is certainly very remarkable that recent researches have proved the existence in this infusion of the Holly of the bitter tonic substance called by chemists *theine*, which renders the Chinese tea so refreshing, and which is identical with the caffeine of the coffee-berry. Liebig, referring to tea and coffee, says: "We shall certainly never be able to discover how men were led to the use of the hot infusion of the leaves of a certain shrub, or a decoction of certain roasted seeds. Some cause there must be to explain how the practice has become a necessary of life to whole nations. But it is surely still more remarkable that the beneficial effects of both plants on the health must be ascribed to one and the same substance, the presence of which in two vegetables belonging to different natural families, the produce of different quarters of the globe, could hardly have presented itself to the boldest imagination."

The flowers of the Holly are small, white, and thick like wax, growing in tufts in the axils of the leaves in May and June. The leaves are alternate, deep green, shining, very rigid, the upper ones often without spines, the lower usually very spinous. The bark on the young branches is green, and on the older ones ash-coloured; the berries are ripe in September, and hang on the bough nearly through the winter. The smooth gray bark of the Holly will often be found to be covered in places with raised black marks which very closely resemble Chinese writing. They are really the fruits of a species of lichen called *Graphis elegans*.

Order LIII. OLEACEÆ.—OLIVE TRIBE.

Calyx 4-lobed, not falling off, sometimes wanting; corolla 4-cleft, or of 4 free petals, sometimes wanting; stamens 2, alternate with the lobes of the corolla; ovary 2-celled; cells 2-seeded; style 1; fruit a berry, drupe or capsule of 2 cells, each cell often perfecting but a single seed. The order consists of trees or shrubs with opposite leaves, either simple or compound, and the flowers grow in clusters. They inhabit the temperate regions of most parts of the world. The most important plant is the Olive, so familiar to our minds as connected with some of the most interesting events of sacred history, and which was among the earliest plants to be cultivated. This tree grows freely in the south of Europe, and occasionally bears fruit in this country, but the produce is scanty and uncertain. Britain produces but two members of the tribe, each representing a separate genus.

1. PRIVET (*Ligústrum*).—Calyx with 4 small teeth; corolla, funnel-shaped,

4-cleft; fruit a 2-celled berry. Named from *ligo*, to bind, from the use made of its twigs.

2. Ash (*Fráxinus*).—Calyx 4-cleft or wanting; corolla none, or of 4 petals joined at their base; fruit a winged 2-celled samara. Name, the Latin name of the tree, alluding to the ease with which the timber splits.

1. Privet (*Ligústrum*).

Privet (*L. vulgáre*).—Leaves narrow, elliptical, entire, smooth; panicles terminal, compound, dense; perennial. We have often thought, when looking at this shrub when in flower, that its old name of Prim, or Primprint, was very expressive of its neat and somewhat formal appearance. It, however, doubtless owed this to its having been one of the plants selected by the old gardeners for cutting into various forms, and which, therefore, wore to the eyes of our fathers an artificial formality. It is very common in our hedges, bearing even in winter numbers of dark, somewhat dull-green leaves, and bunches of black glossy berries as large as currants. But common as it is, we must not assume that it is always a native plant. Mr. Hewett C. Watson, who has made a profound study of the geographical distribution of plants, says that, except when growing upon sea-cliffs and in chalk districts, we must regard the Privet as naturalized only. In May and June its pyramidal clusters of white flowers are abundant, having a slight but somewhat unpleasant odour, and soon assuming a dull yellowish-brown hue. The Privet is one of the few shrubs which thrive under the shadow and drip of trees, and it is therefore often planted in shrubberies; while, from its bearing smoke without injury, it is commonly found in the gardens of London and other large towns. The flexible boughs are occasionally used, like osiers, for baskets and various rustic purposes. One of our old writers says of this plant:—"Our common Privet is carried up with many slender branches to a reasonable height and breadth to cover arbours, bowers, and banqueting-houses, and wrought and cut into so many forms of even horses, birds, and other things, which though at first supported, groweth afterwards strong of itself." The writer proceeds to relate how the Privet was praised for its medicinal virtues by Dioscorides and Galen, and says that Matthiolus considers that oil made of the flowers of the Privet, and set in the sun, is "singular good for the inflammation of wounds, and for the headache." He adds that a distilled water was often made of the flowers.

The berries are, in our days and country, the most useful part of the plant. They are perfectly innocuous, and many birds, especially partridges and bullfinches, will feed upon them; but, from the length of time which they remain on the tree, we must infer that as long as the fruits of the hawthorn, mountain ash, and other favourite berries are attainable, those of the Privet are neglected. They are sometimes mixed by dyers with the berries of the buckthorn, and a good pink as well as green dye may, by different modes of preparation, be procured from this plant. An oil, useful for various domestic purposes, is also expressed from the berries, and their juice enters into the pigment of the artist commonly called sap-green. Glove manufacturers use the fruit in giving the black colour to kid. A friend of the writer saw boys gathering them into baskets in large numbers for this purpose, both in

Gloucestershire and Somersetshire, where the shrub is very plentiful. The young twigs of this plant are used in Belgium and Silesia by tanners.

The *L. lúcidum* of China yields a vegetable wax, used in that country for many purposes. The wood of our wild plant is fitted for the turner. The caterpillars of several moths feed on its foliage. One of these is so frequent that it has received the name of Privet hawk-moth. It is a large and handsome insect, of a bright colour, striped with purple and white.

2. Ash (*Fráxinus*).

Common Ash (*F. excélsior*).—Leaves large, pinnated; leaflets egg-shaped and lanceolate, pointed and serrated; flowers without calyx or corolla. A form of the tree occurs in Devonshire with simple leaves, which is the *F. heterophylla* of some botanists. Long after many of the trees of our woodlands are in the full leaf of advanced spring, this noble tree with its ash-coloured bark is still without a spray of green, and its twin black buds stand in conspicuous array on the flattened twigs. Bishop Mant well describes them:

> "Its buds, on either side opposed
> In couples, each to each, enclosed
> In caskets black and hard as jet,
> The Ash-tree's graceful branch beset;
> The branch, which, clothed in modest grey
> Sweeps gracefully with easy sway,
> And still in after life preserves
> The bending of its infant curves."

When May comes round with its verdure and bloom, the Ash is well clothed with its masses of light sprays; and scarcely a forest tree is more beautiful, and few, save the poplar, send out their branches higher towards the sky. Virgil termed the Ash *pulcherrima sylvis;* and well did Gilpin name it the Venus of the Forest, while he called the oak its Hercules, for the light and graceful form of the Ash stands in strong contrast to the sturdy gnarled oak. This writer, in his work on "Forest Scenery," thus graphically describes the former tree: "Its branches at first keep close to the trunk, and form acute angles with it; but as these begin to lengthen they generally take an easy sweep, and the looseness of the leaves corresponding with the lightness of the spray, the whole forms an elegant depending foliage. Nothing can have a better effect than an old ash hanging from a corner of a wood, and bringing off the heaviness of the other foliage with its loose pendent branches."

The Ash rises freely from seed; and very pretty, in the months of May and June, is a plantation of Ash saplings, especially when varied with woodland flowers growing around their roots. The stems and branches of the young trees, about four or five feet high, have not yet wholly assumed that pale ash colour which gave the tree its familiar name; but the upper portions are of a most beautiful purplish-brown hue, and are as smooth and glossy as silk. If the soil is good, the young saplings soon rise to a goodly size, and put forth their flowers, destitute of corolla and calyx. The Ash grows rapidly, and is well worthy of its old name, "the Husbandman's Tree," and is fitted to turn to good account for ladders, hop-poles, hurdles, and all sorts of agricultural implements. If some stream winds its way by an ash planta-

tion, making the soil rich and moist, the Ash will soon overtop the oaks of many years' growth, and will send forth its horizontal roots, whose branches will shortly become covered with fibres. In such a soil the roots will extend to a great distance, and form a kind of underground drain, so as to justify the old country proverb, "May your footfall be by the root of an Ash." In such a place the Ash will yield its foliage so luxuriantly, that the cattle will come in the heat of noon to lie beneath its shadow, and the rambler in the country in search of wild flowers may seat himself at its trunk to survey the landscape from the greenest and coolest of leafy retreats.

But these roots of the Ash, so useful by the sides of streams and rivers in supporting the soil of the bank and carrying off the moisture, are very inconvenient on the borders of corn or meadow lands. They check most effectually the growth of the pasture plants, and their fibres prove a hindrance to plough and harrow; while neither corn nor grass will grow well beneath the shadowy screen or the moisture which, condensing on the leaves, falls in drops on the plants below. The woodland is the place most fitted for the Ash, and there we most frequently find it; but it will not grow so well near stagnant water. Cattle browse upon such of the branches as they can reach. The Romans prized Ash-leaves for fodder more than modern graziers do. In Lancashire, however, Ash-boughs are lopped off to serve in autumn as food for cattle; and in Queen Elizabeth's time the practice seems to have been carried on to a great extent in this country; for the inhabitants of Colten and Hawkshead Fells were highly indignant against the number of forges raised there, because, as they said, these consumed the boughs and leaves which they required for the winter food of their cattle. The leaves are readily eaten by deer, and are said to be used with sloe-leaves in adulterating tea. They are certainly less objectionable for this purpose than most of the ingredients so used, and Willich says that their tonic properties are superior to those of the Chinese leaf. In our country the leaves are very little infested by the insect race, frost and time being their two great enemies, leaving them fewer and more scattered; but on the Continent the foliage is much injured, and rendered of a most disagreeable odour, by the Spanish blister-beetle (*Cantharis vesicatoria*), which has, when living, an unpleasant scent, and which, dying on the tree, and leaving its remains to crumble to powder, is sometimes inhaled by those who sit beneath the boughs, and produces most serious inflammatory results. On this account the Ash-tree is not in France planted near towns and villages; but in England this beautiful beetle is too rare to prove an annoyance. The late coming and the early falling of its leaf is a slight disadvantage to the picturesque effect of the tree.

The pendent winged seeds of the Ash are commonly termed *keys*, and in Kent are often called *spinners*, because they spin through the air in falling. The wings are not in pairs, like those of the maple, though like them they have a flattened appendage, which, by floating the seeds on the wind, becomes a great means of their dispersion. This wing has got a twist like that of the blade of a screw-propeller, and this helps the *spinner* to pass through the air with greater directness, and to reach the earth seed first. The old notion, that when these keys are abundant a severe winter will follow, is still retained

in country places; though their repute for medicinal properties has probably quite passed away. An old writer affirms: "The young tender tops with the leaves, taken inwardly, and some of them outwardly applied, are singular good against the biting of viper, adder, or any other venomous beast; and the water distilled therefrom being taken, a small quantity every morning fasting, is a singular medicine for those that are subject to dropsy, or to abate the greatness of those that are too gross or fat." A decoction of the leaves is still esteemed a good febrifuge. The keys were believed to have the same effects as the leaves.

Both Pliny and Gerarde held that there is such an antipathy between the adder and the Ash-tree, that if an adder were encompassed by Ash-leaves it would refrain from biting. Evelyn says that in his day Ash-keys were preserved with salt and vinegar, and sent to table as a sauce, and that being pickled they afforded a "delicate salading." Branches of the Ash-tree are still sometimes hung about beds, to keep away gnats and other insects. The plant was in former years much connected with charms and other superstitious practices, most of which are happily disappearing before the increase of general knowledge and the wide dissemination of religious truth. More than one writer, however, of recent date, tells of some pollard Ash hollowed out by age which is even yet prized by neighbouring villagers as a "Shrew-ash." White mentions one of these trees, which about his time stood in the village of Selborne. "At the corner side of the Plestor, or area near the church," says this naturalist, "there stood about twenty years ago, a very old grotesque pollard Ash, which for ages had been looked upon with no small veneration as a Shrew-ash. Now, a Shrew-ash is an Ash whose twigs or branches, when gently applied to the limbs of cattle, will immediately relieve the pains which a beast suffers from the running of a shrew-mouse over the part affected; for it is supposed that a shrew-mouse is of so baleful and deleterious a nature, that wherever it creeps over a beast, be it horse, cow, or sheep, the suffering animal is afflicted with cruel anguish, and threatened with the loss of the use of the limb. Against this accident, to which they were continually liable, our provident forefathers always kept a Shrew-ash at hand, which, once medicated, would maintain its virtues for ever." A Shrew-ash, it seems, was made by boring a hole into the body of the tree, into which living tomb a poor little shrew-mouse was thrust, and securely plugged up, probably with magic ceremonies unknown to the men of our generation. Happily, no more Shrew-ashes can be made, since the needful incantations are no longer in existence.

The bark of the Ash-tree is useful in tanning, and when burnt it yields a considerable quantity of potash. The ancients had a great veneration for the Ash, and the heroes of Homer are represented as armed with the ashen spear. The Romans used its wood for warlike weapons and agricultural implements. In the sacred book of the Northmen, the Edda, it holds a very conspicuous place.

This tree is mentioned once in Scripture, where the prophet Isaiah says, "He heweth him down cedars, and taketh the cypress and the oak, which he strengtheneth for himself among the trees of the forest: he planteth an Ash, and the rain doth nourish it." The word rendered "Ash" by our trans-

lators is, however, thought to refer to the pine-tree, and is so translated in the Greek Septuagint and Latin Vulgate, and this opinion has been agreed to by Calvin, Bochart, and other learned critics. Our native Ash does not occur in Palestine, though the *Ornus europæa*, or Manna Ash, is found there.

The Ash does not grow to so large a size as some other of our forest trees, but Dr. Plot mentions a tree which was eight feet in diameter; and Arthur Young tells of one in Ireland which had reached the height of nearly eighty feet in thirty-five years. The great Ash at Woburn, which Mr. Strutt has figured in his "Sylva Britannica," is larger and higher still. The height of this noble tree is ninety feet; at the ground it is twenty-three and a half feet in circumference, twenty at one foot, and fifteen feet three inches at three feet from the ground. The diameter of its extended boughs is one hundred and thirteen feet, and it contains eight hundred and seventy-two feet of timber.

The Ash is indigenous to the greater part of Europe, the north of Africa, and some parts of Asia. Professor Jameson, however, doubts if it is truly a native of Scotland, because, if it had formed part of the ancient forests, some traces of the tree would most likely be found in the peat-mosses; yet in these neither Ash-seeds nor beech-mast are discovered, though in many peat-mosses hazel-nuts and fir-cones are to be found in abundance. The French call the Ash *Le Frène*. It is the *Esche* of the Germans, the *Frassino* of the Italians; and both the German and English names are either from the Celtic *æsc*, pike, or from the greyish tint of the bark of the tree.

Order LIV. APOCYNEÆ—PERIWINKLE TRIBE.

Calyx deeply 4—5-cleft, not falling off; corolla regular, 5-lobed, the lobes twisted when in bud; stamens 4—5, inserted in the tube of the corolla; anthers 2-celled; pollen large; ovary 2-celled, or double; styles 2—1; stigma 1, contracted in the middle; fruit various. The order consists of trees, shrubs, or herbaceous plants, with handsome flowers, remarkable for the twisted form of the corolla while in bud, whence Linnæus termed the order *Contortæ;* and also for the beautiful column-like pistil. Several of them have milky juices of an acrid and caustic property; and some of the most powerful poisons, as the celebrated Tanghin poison of Madagascar, are produced by this order. The Oleander, so beautiful an ornament to our conservatories, has acrid and poisonous leaves and roots; and meat roasted on spits made of its boughs has proved fatal to those who ate it.

PERIWINKLE (*Vinca*).—Corolla salver-shaped, with 5 angles at the mouth of the tube, 5-lobed, the lobes oblique; fruit consisting of 2 erect horn-like capsules which do not burst. Name, from the Latin *vincio*, to bind.

PERIWINKLE (*Vinca*).

1. **Lesser Periwinkle** (*V. minor*).—Stem trailing, sending up short, erect, leafy shoots which chiefly bear the flowers; leaves oblong, their margins not fringed; perennial. Of the two species of Periwinkle found in our woods, this only can be considered as truly wild; and even in this case

there are some doubts thrown upon the genuineness of its claim to be regarded as a native. Except in England and Wales, it appears to have no real claim, and even in those countries Mr. Watson is of opinion that it was originally introduced by man, and has continued to hold its own against the aborigines. It seldom produces seed in this country, and that alone is a suspicious circumstance, though it has been explained as due to the plant's habit of increase by rooting from the joints of its trailing stems. It is very ornamental to such spots as produce it plentifully, as in some woods in the west of England, where it covers a wide extent of ground with its bright glossy leaves. It has blue, and in some specimens white, flowers, which expand from March till June; and the interior of the flower is worthy of examination. The pistil expands gradually from a slender base to a broad cup, the stigma, more than half the width of the tube. Within the cup is a tuft of hairs which catch the pollen from the anthers. Around the edges of the cup, and coming almost in contact with it are the anthers on short filaments and with beards. The space left between the two organs is so slight that only insects with long, thin tongues can reach the two yellow honey-glands at the base of the style. Several species of humble-bees and certain flies do this, and as they press down their tongues these get smeared with adhesive matter from the stigma. When the tongue is withdrawn its stickiness picks up pollen from above the stigma, and with this the next flower is fertilized. The foliage of both this and the next species remains green through the winter; hence the Germans call these plants *Sinngrün*. Its juice is acrid, and is so astringent that the plant has been used in tanning.

2. **Greater Periwinkle** (*V. major*).—Stem almost erect; leaves egg-shaped, heart-shaped at the base, their margins fringed; segments of the calyx awl-shaped, and fringed; perennial. This is a naturalized plant, often found in our woods, and on the margins of streams, though generally near enough to houses to give good reason for believing that it is the outcast of a garden. Its stem, which is much more erect than that of the lesser species, often ascends several feet high, and may be trained so as to twine a little way up pillars or around the walls of an arbour. Both leaves and blossoms are twice as large as those of the other plant, but the most distinct specific character is found in the fringed margins of the leaves and calyx of this species. The rich purplish-blue flowers expand in April, and continue in bloom throughout the summer they have a white rim at the base of the limb, and are, as Hurdis says—

> "Pentagonally formed, to mock the skill
> Of proud geometer."

The stems of both species are tough and are flexible enough to merit their scientific name from *vincio*, to bind. The origin of its familiar name is not so obvious as this. The Anglo-Saxons called the plant *Peruince;* in the time of Chaucer it was called *Pervenke;* the French still call it *Pervenche*, and the Italians and Spaniards, *Pervinca;* though among the former people it is also commonly called *Centocchio*, or Hundred-eyes, while the Italian peasants, who twine it around the head of the departed infant or young maiden, call it *Fior di Morto*, Death's-flower. The Greeks termed the plant *Daphnoïdes*,

because of the laurel-like tint and texture of its glossy leaves. In Holland wreaths of the Periwinkle are commonly worn about the heads of young girls, and the plant is there called *Maagdepalm*. In France it has many country names, several of them significant of the connection of the plant with the practices of magic; such is its name of *Violette des sorciers;* while its old French name of *Pucellage* connects it with the Virgin, and in most of the continental nations the flower is worn either in life or death by young maidens.

In Poland the Periwinkle is commonly called *Plicaria*, because it has been considered successful in arresting or curing that dreadful disease, the Plica Polonica, in which the hair forms an entangled mass, which, if cut, is said to cause the death of the patient. The plant is decidedly astringent, though acrid, and our fathers valued its medicinal properties. Parkinson tells us that the leaves held in the mouth will stay the bleeding of the nose; and the best of all our early naturalists, John Ray, recommends it not only as a remedy for toothache, but as fitted to fasten the teeth which are loose. Most of the old writers on plants praise its efficacy as a gargle to heal the diseased throat; and Lord Bacon tells us that, in his days, bands of green Periwinkle were bound about the limbs to prevent cramp. Coles, who wrote in 1657, tells of a friend of his who was "vehemently tormented with the cramp for a long while, which could be by no means eased till he had wrapped some of the branches hereof about his limbs."

Few who look at the Periwinkle clumps, so common now in gardens and shrubberies, are aware that it is one of the oldest flowers of the English garden, and the rival of those earliest favourites, the stock-gillyflower and the rose. Chaucer, describing a garden in the olden time, says:—

"There sprang the violet al newe,
And fresh Pervincke riche of hewe,
And flouris yelowe, white, and rede,
Such plente grewe then in the mede;
Ful gaie was al the ground, and quaint,
And poudred as men had it peint,
With manie a freshe and sundrie floure,
That eastin up full good savoure."

And elsewhere we find this lover of birds and flowers saying:—

"There lacked not
Ne not so muche as floure of brome,
Ne violet, ne eke Pervinke,
Ne floure none that men can thinke;
And manie a rose-lefe full long
Was enterneddled there emong;
And also on his heade was set
Of roses redde a chapilet."

Mr. Phillips, in his "Flora Historica," describes the structure of the pistil of this flower; and this organ well deserves our attention, for it is here, as well as in the smaller species, most beautiful. "The style of this flower," he remarks, "is of a full orange colour, bearing two distinct circular plates, the lower one of which is of a rich orange hue, and the top one white, which may be compared to a shilling placed on a guinea. On the top of the white plate there is a short green elevation which is crowned with five

drooping feathery substances that form a rosette, whose purpose seems to be that of confining down the overhanging parts of the anthers, without entirely excluding the air, which can pass through the feathery nature of the crown." These plants, propagating themselves freely by the root, seldom produce seed-vessels. Mr. Curtis says, that he has never seen a single seed, nor has the writer of these pages ever found one on the plants either of wood or garden. But Miller observed that the plant may be made to produce its seeds by cutting off all the lateral shoots. Tournefort, who examined the plant in Provence, Languedoc, and near Lisbon, in all which places it is very abundant, never saw it in fruit.

Order LV. GENTIANEÆ—GENTIAN TRIBE.

Calyx generally 5, sometimes 4 or 8-cleft, not falling off; corolla wheel-shaped, bell-shaped or funnel-shaped, with as many lobes as those of the calyx, not falling off, twisted when in bud, often fringed about the mouth of the tube; stamens equalling in number the lobes of the corolla, and alternate with them; ovary of 2 carpels, 1 or imperfectly 2-celled; style 1; stigmas 2; fruit a capsule or berry, many-seeded. This is a very extensive order, consisting chiefly of herbaceous plants, with opposite, usually sessile leaves, and with no stipules. Many of the flowers are very beautiful, and the plants of the order are remarkable for their bitter stomachic properties. They are distributed throughout all climates, several of them growing on mountains, near the regions of perpetual snow.

1. GENTIAN (*Gentiána*).—Calyx 4—5-cleft; corolla somewhat bell-shaped, or funnel- or salver-shaped; stamens 5; styles often combined. Name from *Gentius*, an ancient king of Illyria, who discovered its medicinal properties.

2. GENTIANELLA (*Cicéndia*).—Calyx 4-cleft; corolla 4-cleft, funnel-shaped, the tube swelling; stamens 4; anthers opening lengthwise; capsule 1-celled, 2-valved. Origin of name unknown.

3. CENTUARY (*Erythræa*).—Calyx 4—5-cleft; corolla funnel-shaped, 4—5-cleft, not falling off; stamens 4—5; anthers becoming spirally twisted; stigmas 2; capsule nearly cylindrical, imperfectly 2-celled. Name from the Greek *erythros*, red, from the colour of the flowers.

4. YELLOW-WORT (*Chlóra*).—Calyx deeply 6—8-cleft; corolla with a very short tube, 6—8-cleft; stamens 6—8; stigma 2—4-cleft. Name from the Greek *chloros*, yellow, from the colour of the flowers.

5. BUCK-BEAN (*Menyánthes*).—Calyx deeply 5-cleft; corolla funnel-shaped, with 5 lobes, fringed all over the inner surface; stamens 5; stigma 2-lobed. Name of doubtful origin.

6. VILLÁRSIA.—Calyx deeply 5-cleft; corolla wheel-shaped, with 5—8 lobes, which are fringed only at the base; stamens 5—8; stigma with 2 toothed lobes. Name in honour of M. de Villars, a French botanist.

1. GENTIAN (*Gentiána*).

1. Marsh Gentian (*G. pneumonánthe*).—Leaves linear, blunt; flowers terminal and axillary, nearly sessile; corolla 5-cleft; perennial. This plant is known, when in flower, from all the other Gentians by the fine broad,

1. MARSH GENTIAN.
   Gentiana pneumonanthe.
2. SPRING GENTIAN.
   G. verna.
3. SMALL ALPINE GENTIAN.
   G. nivalis.
4. SMALL FLOWERED GENTIAN.
   G. amarella.
5. FIELD GENTIAN.
   G. campestris.

greenish stripes extending down the exterior of the rich deep-blue corolla, which is rather funnel-shaped than bell-shaped. Humble-bees can get into the broader upper part of the funnel, from which point their tongues are long enough to reach the honey, though to do so they have to press against the bursting anthers, and carry away part of the pollen. At this time the stigmas are not mature, but in an older flower it is the stigma that is pressed against, and some of the pollen is left on it. There are usually one or two blossoms on the same stalk, and the plant is in flower from August to September. It occurs on several moist heathy places of England, but is very rare. The bitter tonic principle, which renders the Gentians so valuable in medicine, exists to a considerable degree in this species; and both this and *G. amarella* may be used instead of the yellow *G. lutea*, which we procure from other countries, and which is found in Italy, Germany, France, Sweden, Lapland, and some parts of North America. In this latter plant the juices are so intensely bitter that large tracts of grass land are, in several of these countries, left untouched by cattle, to whom, indeed, none of the Gentian tribe are acceptable. The medicinal use of the Gentian is of great antiquity, and Parkinson says of it: "The wonderful wholesomeness of Gentian cannot be easilie knowne by reason our daintie tastes refuse to take thereof for the bitternesse' sake; but otherwise it would undoubtedly worke admirable cures for the stomache and lungs. It is also a speciall counterpoison against any infection, as against the violence of a mad dog's tooth."

Our plant is the Calathian violet of the old writers. A plant called Marsh Felwort, *Swertia perennis*, is very nearly allied to this. It is said by Hudson to have been found in Wales by Dr. Richardson, but it is believed that the Marsh Gentian was mistaken for it. Bishop Mant thus alludes to the two plants:—

"And see Marsh Felwort bares to view
His wheel quintuple's brilliant blue,
Cambria, thy pride! if Cambrian coast
Indeed that native beauty boast.
Less apt to pay the searcher's cares
Than that a kindred name which bears,
The beauty of the Gentian race
Whose gallant flowers with 'bravery grace,'
Or chalky down, or meadow wet,
The blue Calathian violet."

2. Spring Gentian (*G. vérna*).—Stem tufted, 1-flowered; leaves egg-shaped, lower ones crowded; calyx angular, with sharp teeth; corolla bright blue, salver-shaped, with 5 distinct lobes, alternating with bifid scales; perennial. This is a very lovely Gentian, sometimes cultivated in gardens, though it is smaller than the handsome *G. acaulis*, which is still more frequently to be seen on the flower-bed, and which is a native of the Swiss mountains. The Spring Gentian flowers in April. It is a rare plant of Alpine pastures, growing in barren limestone districts. It has been found in Teesdale, Durham, Westmoreland and Yorkshire, and in some places in Ireland. Its stem is prostrate and rooting, and its flower is rather large, and intensely blue.

Many of the Gentians are mountain flowers, some growing at heights beyond which nothing is to be found save moss and lichen; and often they

are, on the Swiss mountains, the companions of some of the Primrose tribes on the very verge of eternal snow. The severest intense cold does not hurt them, and they grow on tropical elevations often at a great height. Until recently, it was thought that they never occurred in these regions at a lower elevation than 7,852 feet; but Sir Joseph Hooker, in his botanic researches on the Himalayan Mountains, found one, *G. arenaria*, at an elevation of only 2,000 feet. The whole climate was there thoroughly tropical, but the Gentian grew on mossy rocks cooled by the spring of the river. One species has been found on the Himalaya range at the height of 16,000 feet; and the *G. prostrata* occurs in the Rocky Mountains of America, at an equal elevation to this.

Meyen, the German writer on the Geography of Plants, remarks, "It is an inexpressible pleasure which only a botanist can feel, when, coming from the North, he ascends a high mountain in a southern region, and finds one well-known plant after another. Even in the Swiss mountains his pleasure is great; but how much greater is it when far from home he is wandering on the mountains of the southern hemisphere! The sight of a little Gentian, very similar to our *G. uliginosa* and *G. nivalis*, at a height of 14,000 or 15,000 feet, as in the Cordilleras of Southern Peru, can enchain a botanist for hours; he again and again gathers this little plant, which takes him, at least in imagination, home."

3. **Small Alpine Gentian** (*G. nivális*).—Leaves egg-shaped, lowermost broadly elliptical; branches single-flowered; corolla salver-shaped, 5-cleft, with intermediate smaller segments; calyx cylindrical, with five keeled angles; annual. This is an exceedingly rare and beautiful little Gentian, having an erect stem, slightly branched, and from two to six inches high. It grows on the summits of Highland mountains, bearing in August flowers of a most brilliant blue colour.

4. **Small-flowered Gentian**, or **Felwort** (*G. amarélla*).—Stem erect, branched, many-flowered; calyx 5-cleft; corolla salver-shaped, 5-cleft, fringed in the throat; annual. This species grows on dry limestone hills, but it is not frequent. It is a formal-looking plant, remarkably erect, with a square leafy stem, often tinged with purple, very variable in size, being from three to twelve inches high. The flowers are rather large, of a purplish colour, expanding only in bright sunshine, and appearing in August and September.

The Felwort appears to have been highly prized, for we find Gower saying—

> "Though toke she Feldwodde and verveyne,
> Of herbes ben not better tweyne."

5. **Field Gentian** (*G. campéstris*).—Stem erect, branched, many-flowered; calyx 4-cleft, the 2 outer lobes much larger than the others; corolla salver-shaped, 4-cleft, fringed in the throat; annual. This plant is very similar to the last, but distinguished from it by its larger 4-cleft flowers, which often cluster in great numbers at the upper part of the stem from August to October. The plant is very common on hilly pastures, especially in Scotland; and on limestone hills, near the sea, its pale lilac blossoms often stand up above the short grasses. It contains in every part of it some of the tonic,

bitter principle common to the tribe, and is sometimes used by country people to mingle with their hops in brewing. This bitter principle, like the acridity of the buttercups, has doubtless been developed by the Gentians to protect them from extermination by herbivorous quadrupeds. Several of the species have, in various times and places, been used instead of the hop; and before the general culture of the latter plant, malt liquor received much of its flavour from a species called in those days Felwort, Bitterwort, Baldmoyne, or Bald-money. In those times, when queens and maids of honour drank foaming ale for their breakfast, several bitter plants were in much request; and Gerarde tells, that a species of Gentian was sent to him from "Burgundie by Master Isaac de Lanne, for the encrease of his garden." The species to which he refers appears to be the Gentian of commerce, *G. lutea*, still used for various disorders, but not for so many as in those days, when it was considered soporific as well as tonic. Modern physicians find, however, that one species at least, *G. microphylla*, has soporific properties, and it has been used in many instances in procuring sleep for the weary sufferer. The basis of the celebrated Portland powder is said to be Gentian; and as the roots of nearly all the species contain a large proportion of sugar, an intoxicating liquor has been distilled from them, which the Swiss call *Gentianwasser*. The French term the Gentian *La Gentiane*, and the Germans *Der Enzian*; the Dutch call it *Gentiaan*, the Italians *Genziana*, and the Russians *Goretschafka*.

2. Gentianélla (*Cicéndia*).

1. **Least Gentianélla** (*C. filifórmis*). — Leaves slender, lanceolate, sessile; stem angled, forked; flower-stalks elongated; annual. This is a graceful little plant, very similar in its habit to the dwarf centaury, and with a stem about the same height, but with smaller flowers. It is from two to four inches high, the narrow leaves withering early, and the flowers opening only during sunshine. These flowers are yellow, occurring from July to September. It differs from the Gentians in having four instead of five stamens, and its calyx and corolla are 4-cleft. It grows in sandy bays and on sandy heaths. It is found in the south and south-west of England, and in sandy turf-bogs in Ireland. Some separate it from *Cicendia* and call it *Microcala*.

2. **Guernsey Gentianélla** (*C. pusillum*).— Similar to the last-mentioned, but smaller and more slender; flowers pink, sometimes with the parts in fives. Lobes of the calyx awl-shaped, the lobes of the corolla ending in little points. It is an annual plant with several branched stems arising from the root. It flowers from July to September, and grows on sandy commons in the Channel Islands.

3. Centaury (*Erythræa*).

1. **Common Centaury** (*E. centaúrium*).—Stem quadrangular, branched above; leaves oblong; flowers in nearly sessile panicles; calyx half as long as the tube of the opening corolla; annual. The Common Centaury is a pretty and frequent plant on heaths and dry pastures, as well as on cliffs by the sea, from June to September. If we look for its flowers on a cloudy day,

we find that they are all closed up, nor are they ever to be seen in full beauty after three o'clock. We have, however, sometimes seen a gathered specimen gradually unfold its blossoms even on an evening, when placed on the hearth in the full light and warmth of the fire. The stem bears its panicles of blossoms near the top. They are of a beautiful rose-colour, in very pretty form, and varied by the golden anthers. The leaves are of a light delicate green, remarkably smooth, and having strong parallel ribs. They are intensely bitter, and possess tonic properties; as Dodsley says—

"Wormwood and Centaury, their bitter juice,
To aid digestion's sickly powers, refine."

The Centaury is a long approved medicinal herb, and undoubtedly one of the very best which our native fields supply. We have the authority of Dr. George Moore, for saying that it may be taken with great success in brow agues and intermittent fevers. This author remarks, that the poor on the coast of Sussex make a strong infusion of this excellent bitter; and we have ourselves seen it much used in Kent as a tonic, and often dried for the purpose. Mr. Purton also considers an infusion either of the leaves or roots good for weak digestions; and Professor Burnett remarks that did not our catalogue already groan, this plant might be added to the list of the "Materia Medica." The old herbalists who called it "the ordinary small Centaury" say that it is "under the dominion of the sun, as appears in that the flowers open and shut as the sun either showeth or hideth his face." They recommend it as a cure for jaundice and agues, and also, in a fresh state, as an outward application to wounds. They say that the infusion of the plant removes all freckles, and add, that "the herb is so safe you cannot fail in the using of it. . . . 'Tis very wholesome, but not very toothsome."

2. **Dwarf-branched Centaury** (*E. pulchélla*).—Stem quadrangular, much branched; leaves egg-shaped, the uppermost oblong; flowers stalked, in loose panicles, axillary, and terminal; calyx nearly as long as the tube of the opening corolla; annual. This species is much like the preceding, and probably but a variety of it. The stem is either simple, or much branched, even from the base, six or eight inches high, having numerous rose-coloured flowers in leafy forked panicles, with a single flower-stalk between the branches. The length of the tube of the corolla must be observed exactly at the time when the flower is beginning to expand. The plant blossoms from July to October.

3. **Broad-leaved Tufted Centaury** (*E. latifólia*).—Stem quadrangular, short, branched from the base; leaves broadly elliptical, blunt; flowers in crowded forked tufts, sessile; calyx rather shorter than the tube of the opening corolla; segments of the corolla lanceolate; annual. This species has a thick stem, often not more than two or three inches high, though occasionally taller. It usually divides itself into three main branches, and has very large root and stem-leaves strongly ribbed, its pink tufts of flowers opening in June and July. It occurs in various places near the sea.

4. **Dwarf-tufted Centaury** (*E. linarifólia*).—Stem simple, or branched; root-leaves crowded, tapering at the base; stem-leaves oblong, linear, blunt; flowers in sessile clusters; calyx as long as the tube of the opening

1 LEAST GENTIANELLA
Cicendia filiformis

2 COMMON CENTAURY
Erythræa centaurium

3 DWARF BRANCHED C.
E. pulchella

4 BROAD LEAVED TUFTED C.
E. centaurium var.

5 DWARF TUFTED C.
E. linarifolia

corolla, deeply cleft; annual. This plant is found on various sandy sea-shores. Its leaves are all narrow and ribbed, and it varies in height from two to six inches. Its rose-coloured flowers expand from June to August.

Sir Joseph Hooker is of the opinion that we have only one British species, —*E. centaurium*—of which the others are at most sub-species.

4. Yellow-wort (*Chlóra*).

Perfoliate Yellow-wort (*C. perfoliáta*).—Leaves connate, perfoliate, egg-shaped, glaucous; panicle forked, many-flowered; calyx divided to its base into long narrow segments; annual. This pretty plant can scarcely be called common; though on chalky soils south of Durham and Westmoreland, and in Ireland, we may often find it in abundance. On the cliffs of Dover one might see on any summer day a hundred plants during a morning walk, the yellow flower reminding us, both in form and hue, of some of the garden jessamines. But the Yellow-wort is an herbaceous, and not a shrubby, plant; and its pale sea-green stem, a foot or a foot and a half high, runs through the leaves, and, like them, is thickly covered with sea-green bloom. The flowers open only in sunshine, and have a singular habit of expansion: for the central flower unfolds early in the morning and closes at noon, and then the lateral flowers expand and remain open till sunset. It is very bitter, and is often called on this account Yellow Gentian, and doubtless its properties are somewhat similar to those of that tonic bitter plant. The seeds, if pressed, are found to be full of a yellowish thick juice. The whole plant will afford a good yellow dye. It was formerly called *Blackstonia*, after a London surgeon named Blackstone. In the time of John Ray, it was termed *Centaureum luteum*. Lister, in writing to Ray in 1669, says, "I add, by way of present, a couple of pastiles, or small cakes, made of the juices, dried in the sun, of our English store of plants; they are unmixed, and purely natural as they were taken from the plants by incision. The one was, in the drawing or issuing out of the plants, a purple juice; the other a gold colour. The one burns freely with a flame, and is of no offensive or ungrateful smell; the other burns not at all with a flame, at least continues it not, and is intoxicating; they are both bitter. Guess me the plants that afford them. I have a score of different juices beside by me in cakes; but these are, if I mistake not (at least to the best of my knowledge), nowhere made mention of by any author, although the plants be common in England." As our great naturalist replied, that he was "not so cunning as to tell" what plants afforded these cakes, Mr. Lister informed him that they were our Yellow-wort, and one of the Lettuce plants, *Lactuca sylvestris*.

The *Chlora* blossoms from June to September. The French call it *Clore*; the Germans, *Biberkraut*. It is still sometimes termed *Perfoliate Centaury*.

5. Buck-bean (*Menyánthes*).

Buck-bean, or Marsh Trefoil (*M. trifoliáta*).—Leaves alternate, stalked; leaflets 3, equal, inversely egg-shaped, wavy; flower-stalk supporting a stalked cluster; perennial. A more lovely plant than this is not to be found in our native Flora. It grows in marshy boggy grounds, and on the margins of woodland tarns, which it sometimes covers with its matted stems

—spots so well loved by the botanist. Mr. Curtis justly says, that it is equal in beauty to the kalmias, rhododendrons, and exotic heaths, on which so much money is expended, while this is unregarded. Certainly, the rambler who shall at its flowering time come across some lonely pond, deep hidden in the woods, of which this plant has taken full possession, is never likely to forget the wonderful beauty of the scene presented by thousands of spikes of fringed flowers. The stem is but little raised above the moist soil or water, and has at its top three succulent sea-green leaflets, very much like those of the common field-bean; each leaf-stalk has a sheathing base, opposite to one of which rises the beautiful cluster of blossoms. Before these are fully expanded, they are of a bright rose tint; and when quite open, the petals are covered with a white silken fringe, like plush. The flowers appear in June and July. This plant is often called Bog-bean, and is the *Meniante* of the French, and the *Fieberklee*, or *Bocksbohne*, of the Germans. The Dutch call it *Driebladige ruigbloem*, and also *Boex boonen;* while about Hamburg it is known as the "Flower of Liberty," and the inhabitants say that it grows only within their land, and has never been seen in the south of Denmark, which adjoins it. Sir William Hooker saw it in great plenty in Iceland, and says that it is of much use to travellers there, who are unacquainted with the route on the morasses; for they are well aware that wherever it grows they may safely pass over its thickly-woven roots, which make a firm bed beneath the soft subsoil. The Icelanders use pieces of their matted tufts to prevent the saddle or any load from chafing the horse's back.

The bitter roots of the Bog-bean form one of our best native tonic medicines, and the author has known them to be placed in wine, which was afterwards drunk with very great benefit by persons afflicted with rheumatism. They are also an old and effectual remedy for ague; and in Sweden the plant is used as a substitute for the hop, two ounces of the leaves serving instead of two pounds of that plant. The Laplanders eat the powdered roots, which are full of starch, but probably employ some means to lessen their bitterness; possibly the mixture with meal in making it into bread, and the subsequent baking, sufficiently mitigate this unpleasant character. From Parkinson we learn that the plant was in his time called Marsh Clover.

6. Villarsia (*Villársia*).

Nymphæa-like Villarsia (*V. nymphæoides*).—Leaves round, heart-shaped at the base, floating, wavy at the edges; stem long, round, branched; perennial. This is a most elegant water-plant, bearing its large yellow plaited flowers in July and August. It is very rare, but occurs in the still back-waters of the Thames and some rivers in Yorkshire; though north of Norfolk and in Scotland and Ireland it is thought to be naturalized only. In Holland it is so abundant as almost to cover some of the canals. The French botanist, M. de Villars, whose memory the name of this flower records, wrote in 1786 a "Flora of Dauphiné," which is in use even in the present day. The leaves of the plant are much like those of the water-lily, but are smaller in size. The Villarsia may be easily propagated either by seeds or by

1. PERFOLIATE YELLOW WORT.
   Chlora perfoliata.
2. BUCKBEAN.
   Menyanthes trifoliata.
3. NYMPHÆA-LIKE VILLARSIA.
   Villarsia nymphæoides.
4. JACOB'S LADDER.
   Polemonium cæruleum.

dividing the roots, and, once established, it is very difficult of extirpation. The canals in some parts of Holland are covered with its bright yellow flowers. It is also known as *Limnanthemum peltatum*.

Order LVI. POLEMONIACEÆ—JACOB'S LADDER TRIBE.

Calyx deeply 5-cleft, not falling off; corolla regular, 5-lobed; stamens 5, from the middle of the tube of the corolla; ovary 3-celled; style single; stigma 3-cleft; capsule 3-celled, 3-valved. This order consists of herbaceous plants, often having handsome flowers, but possessing no important properties. They are remarkable for the often blue colour of their pollen; and several, as the various species of *Phlox*, *Gilia*, and *Cobœa*, adorn our gardens.

JACOB'S LADDER (*Polemónium*). — Corolla wheel-shaped, with erect lobes; stamens bearded at the base; cells of the capsule many-seeded. Name, the Greek name of the plant.

JACOB'S LADDER (*Polemónium*).

Blue Jacob's Ladder, or **Greek Valerian** (*P. cæruleum*).—Stem angular; leaves smooth, pinnate; leaflets egg-shaped, somewhat lanceolate; flowers in panicles; perennial. This plant, though very common in gardens, is rare in a wild state, and is chiefly found in the north of this kingdom. Several of its localities in Scottish woods are recorded, but it is doubtful if it is truly wild there, though on some banks and bushy spots of Yorkshire and Derbyshire it appears to be really so. The stem is angular, about one or two feet high, and its pinnated leaf suggested its name in days when men readily traced in Nature some similarity to the objects and allusions of Holy Writ:—

> "And see of favour'd York the child,
> Or Derby's mountain thickets wild,
> The plant not strange to Scottish skies,
> Whose leaflets, ladder-like, arise,
> Pointing to azure vaults above—
> The Patriarch's Dream—in southern grove
> Infrequent."

The flowers of this plant appear in June and July; in colour they are pale-blue or white, and of a delicate texture. The whole plant is somewhat astringent, but has not the virtues which we might from its name expect. Pliny relates of the *Polemónium*, that it had also among the Greeks the name *Chilodynamia*, on account of its excellent properties; while the name by which it is known to us is, according to his account, from *polemos*, war, because two kings, having each claimed the merit of discovering the great uses of the herb, had recourse to arms to settle the disputed question. But every one conversant with the names of ancient writers is aware of the difficulty of exactly ascertaining in some cases the plants intended. Professor Burnett believes that the Marsh Polemonium of Hippocrates was the *Gratiola*, or hedge hyssop, a plant possessing very active properties. The French call our Jacob's Ladder *La Valériane Grecque*. It is the *Speerkraut* of the Germans; the *Spierkruid* of the Dutch; and the *Polemonium* of the Italians.

Order LVII. CONVOLVULACEÆ—BINDWEED TRIBE.

Calyx inferior, of 4—5 sepals, not falling off; corolla funnel-shaped, bell-shaped, or tubular, regular, plaited; stamens 5, from the base of the corolla; ovary 2—4-celled, few-seeded, surrounded below by a fleshy ring; style 1; stigmas 2; capsule 1—4-celled. This order consists either of herbs or shrubs which are generally climbing, bearing large and showy flowers and milky juices. One of our British genera, *Cuscuta*, is parasitic, and has no leaves.

1. BINDWEED (*Convólvulus*).—Corolla vase-shaped, with 5 plaits and 5 very shallow lobes; style 1; stigmas 2; capsule 2-celled and 2-valved. Name from the Latin *convolvo*, to entwine, from the twisting habit of many species.

2. HOODED BINDWEED (*Calystégia*).—Calyx with 5 sepals inclosed within 2 very large opposite bracts; corolla vase-shaped; style 1; stigma 2-lobed; capsule 2-celled, 1-valved. Name from the Greek *kalos*, beautiful, and *stege*, a covering, from its bracts. By some authors the species are included in the genus *Convolvulus*.

3. DODDER (*Cuscúta*).—Calyx 4—5-cleft; corolla pitcher-shaped, 4—5-cleft, with 4—5 scales at the base within. Name said to be derived from the Arabic *keshout*, to bind.

1. BINDWEED (*Convólvulus*).

Field Bindweed (*C. arvénsis*).—Stem climbing; leaves arrow-shaped, their lobes acute; stalks mostly single-flowered; bracts minute, distant from the flower; perennial. Everybody knows the pretty pink or white vase-like cups of the small Bindweed, which, in June and July, rise from trailing stems on many a wayside bank, shutting up at night or when rain is coming. The farmer knows them but too well, for this plant is one of the most troublesome weeds of his cornfield, twining itself around the stalks of the wheat or barley, and taking such good hold that no wind or weather can rend it from its support. A blade of grass, a tall nettle, a bush, or any other object near it, is soon garlanded with its numerous almond-scented flowers. It has many country names, as Bindweed, Bearbind, Hedgebell, Ropewind, Withywind—all expressive of its clinging habits, besides some names which betoken the dislike entertained of the intruder, and which are unsuited to our pages. In France the plant is called *Le liseron des champs;* and in Germany *Die Winde.* In Italy the Convolvulus has the name of *Vilucchio;* and the Spaniards call it *Correguela.* It is most difficult of eradication, for the white jointed roots not only increase readily, but are very tenacious of life, and penetrate to such a depth in the soil as to lie almost beyond the reach of the ordinary instruments of culture; while, if only a small piece is left in the earth, it soon sends forth its trailing stem above the surface. In light dry soils, which are peculiarly adapted to it, the roots sometimes extend three feet below the surface. Miller says, that its abundant growth is often a sign that gravel lies beneath. Its seed-vessels are so rarely formed that Sir J. E. Smith remarks that he had never seen them; and many botanists believed, some years since, that the seed was not perfected in this country. That opinion is now known to be erroneous, and the author has gathered near Ramsgate several of the dry capsules, which are about as large as a pea, containing the

1. FIELD BIND-WEED
Convolvulus arvensis

2. GREAT BIND WEED
Convolvulus sepium

3. SEA BIND-WEED
Convolvulus soldanella

matured blackish seeds. The flowers expand all the summer; they are sometimes of a deep-rose colour, at others paler, or even white; and they often serve as canopies to some little lilac-coloured insects, which, probably, find food as well as shelter within them.

"Our vernal flowers have faded now, for summer is abroad;
There's thicker foliage on the trees, and greener is the sod;
You cannot ransack wood or hill, the wayside hedge or dell,
But you shall find a store of flowers whose charms no tongue can tell.
It is the month of roses, the sweetbriar, and the thorn;
While peering at the sunshine amidst the emerald corn,
The pimpernel thrusts out its bloom of scarlet, closing up,
At every passing shower or cloud, the treasures of its cup;
And sweet as a bruised walnut-leaf, when it begins to fade,
The lemon-scented agrimony perfumes all the glade,
With starry blossoms topaz-hued; while near them in the wheat,
Pink-bell'd Convolvuli trail out their corals fair and sweet."

The root of this Bindweed affords a resinous substance of some medicinal power, though not so active as the scammony which is procured from the root of *C. scammonia*, and which is imported from the Levant, where the Convolvulus which produces it is very common. Several of the tribe afford similar resins, and the medicinal jalap is yielded by the root of the *Ipomœa purga*.

2. Hooded Bindweed (*Calystégia*).

1. Great Hooded Bindweed (*C. sépium*).—Stem climbing; leaves arrow-shaped, their lobes often blunt, as if cut off; stalks single-flowered; bracts heart-shaped; stigmas short and blunt; perennial. The plants of this genus are very nearly allied to those of the last, differing chiefly in the conspicuous leaf-like bracts. Our Great White Bindweed is a well-known wild flower, its large foliage hanging about the hedges, and giving them, in autumn, a yellow tinge by its deep colour. The leaves differ from those of any other native plant in the peculiar manner in which their lobes are cut off at the base; but they are not all thus characterized, as some are heart-shaped. The beautiful large snowy bells, sometimes striped with pink, and occasionally entirely of pale rose-colour, hang gracefully among the large leaves from June to September, and compensate by their elegance of form and hue for the absence of fragrance. They are not so sensitive to rain as the flowers of the Field Bindweed, nor do they close until the near approach of night. Country people call the plant Old Man's Nightcap and Great Withywind. Its roots have medicinal properties, similar to those of the scammony; and Dr. Withering thought they might be used as a substitute for that drug. Swine eat them without injury.

The large Bindweed attains great luxuriance in hedges and banks near rivers, sending out masses of leaves on its climbing stems. Meyen, referring to the *Lianas*, or climbing plants, which are so striking a feature of tropical scenery, and give to the primeval forests their character of exuberant vegetation, says, "Plants of this kind are almost unknown in our northern regions. The hop, the honeysuckles, and bryonies can give us only a faint idea of the *Lianas* of those countries; but our Great White Bindweed, which often grows profusely over the highest bushes, may give us, by its beautiful

leaf and the size of the flower, some notion of the way in which the tropical *Convolvuli* adorn the tops of the highest trees."

2. **Seaside Convolvulus** (*C. soldanélla*). — Leaves kidney-shaped, slightly angular, fleshy; stalks 1-flowered, with 4 membranous angles; bracts egg-shaped, close to the flowers; perennial. This is one of the many interesting ornaments of our sandy shores; where, though we may sometimes wander for miles without seeing it, it is in some places very abundant, and is always an exceedingly pretty plant. On the sandhills about Sandwich, and among pebbles on the shore at New Romney, in Kent, it is plentiful; as it is also common on the sandy shores of the western counties of England.

The flowers of this species are rose-coloured, and very conspicuous, expanding from June to September. The seed-vessel is remarkably large, sometimes even as large as a hazel-nut, and the seeds themselves scarcely smaller than peas. The Soldanella grows not only on hills and banks of sand, but also in crevices of rocks or on cliffs. Mr. Thompson, referring to its growth in Wales, says: "It is one of the productions claimed by the grey-wacke formation of the Penmaenmawr mountains, and denied to the limestone of Orme's Head. It is true that a few specimens may be encountered near Llandudno, but they are seldom seen in a flowering state, and I have never found one seed-vessel of that species on the shore opposite the town of Conway, although familiar to me from frequent search. The plant, however, flowers and produces seed in great abundance on the level tract of shore subtending the cliffs of Penmaenbach." The flowers of this species close during night and rainy weather. They are often almost all that can be seen of the plant, as the leaves are nearly buried in the sand, the stem rarely taking to twining as in the other species.

3. Dodder (*Cuscúta*).

1. **Greater Dodder** (*C. europæa*).—Heads of flowers dense and sessile, with bracts, styles not protruding beyond the mouth of corolla; tube of the corolla longer than the calyx; scales pressed close to the tube; annual. This is a less frequent kind of Dodder than that which so commonly winds about our furze bushes. It is, like all the species, without leaves, and has very long twining stems, covered with small tubercles, which serve as roots; and in July and August the little clusters of pale-yellowish rose-coloured flowers expand. The plant is, however, rather local than rare, abounding in Cambridgeshire, Huntingdonshire, and some other counties, entwining thistles, nettles, hops, beans, and some other plants. Unlike other strictly parasitic plants, the seeds of the Dodder germinate at first in common soil, though if the seedlings be kept there they very soon perish. When in the neighbourhood of vegetation suited to their growth, they twine about it, sending their coils from left to right, contrary to the sun's apparent course. After they have well inserted their aerial roots within the substance of the neighbouring plants, the original root, from which they derived their earliest nutriment, dies, leaving them to feed on the juices of the adopted vegetable. A writer in Loudon's *Magazine of Natural History*, says of the Greater Dodder: "This parasite can be established wherever the hop plant grows, by placing, in the autumn, a wreath of the Dodder-vine, bearing ripe capsules, on the

1. GREATER DODDER
Cuscuta europæa
2. FLAX D.
C. epilinum
3. LESSER D.
C. epithymum
4. CLOVER D.
C. trifolii

earth about the base of the stems of the hop. The seeds of the Dodder, escaping from their capsules, will remain on the earth's surface through the winter, and germinate early in the ensuing spring, some days ere the stems of the hop shoot forth. It will then be highly pleasing to observe the spiral convolutions of the sprouting embryo of the Dodder, convincing us that vegetable instincts are innate; for even in the seed, if examined, the embryo may be found convolved about the central fleshy globose albumen. By the time the hop stems will have burst through the soil, many of the embryos of the Dodder will have perished; but when the survivors happen to touch the hop-stem, they very soon adhere, and insert their sap-sucking glands into the bark of the hop-stem, and, from the date of doing this, speedily change their pale aspect and feeble condition to a ruddy, healthy hue and a state of gross luxuriance; and these latter effects are maintained through all the copious ramifications of the plant by the branches emitting a fresh cluster of absorbing glands into the hop-stem at many of the points at which they clasp it." This botanist adds, that he had the Dodder growing on hops in his garden for three successive summers. "In one of the summers," he remarks, "it flourished besides on an exotic species of teasel (*Acænops vulgaris*), nearly allied to the British *Dipsacus pilosus*, which had grown up beside the rubbish-heap, merely from the dead seed-bearing stems of the teasel and the Dodder, along with those of the hop, having met at the rubbish-heap during the preceding winter, in the operation of cleansing the garden of its annual herbage. The reddened wreaths of Dodder branches, knotted with heads of flowers, were hung in elegant festoons about the arm-spread branches of the teasel, and contrasted strikingly with its abundant verdant leaves. I have known this species transplanted, by cuttings, or rather by a branch broken off, into a stove, and there successfully established on a growing plant of the red Malabar nightshade, and on some other plant whose name I have forgotten. In the green-houses at Cambridge, a very vigorously-growing perennial species of Dodder, if I rightly remember, from China, luxuriates on plants of the common and broad-leaved ivy, and on the succulent shoots of the pelargonium, known by the name of the horse-shoe geranium." Mr. Dovaston remarks, that he has seen one of the Dodders in such tangled profusion at Liphook, in Hampshire, that it absolutely pulled down and killed the nettles.

Gerarde describes the Dodder as "a strange herbe, altogether without leaves or roote, like unto threds, very much snarled or wrapped together confusedly, winding itselfe about bushes and hedges, and sundrie kindes of herbes. The threds are somewhat red, upon which grow here and there little round heads or knops, bringing forth at the first slender white flowers, afterwards a small seede." The old writers had several profane and coarse names for the plant. It was also commonly called Tetter and Strangle-weed; and the learned Sir Thomas Browne, who mentions it by these names, tells in his "Quincunx" of a rural charm used in his day against these troublesome twining plants, which consisted of placing a chalked tile at each of the four corners, and another in the middle of the field in which it grew, "in order," as he says, "to diffuse the magic all about."

2. **Flax Dodder** (*C. epilinum*).—Heads of flowers with bracts, sessile;

and very succulent, styles included; corolla with a globose tube, scarcely longer than the bell-shaped calyx; scales closely pressed; annual. This is a naturalized and not a truly wild plant. It is abundant in Germany, and is supposed to have been brought into this country with the imported flax-seed. It is very injurious to the plant on which it is parasitic. Mr. J. E. Bowman discovered the species in 1836 in some flax in a field near Ellesmere, in Shropshire. He at first took it to be *C. europæa*, but finding, on further examination, that the structure differed somewhat from that of that plant, he forwarded it to Sir Wm. Hooker for examination. This botanist decided it to be the species which is in Germany so very destructive to the flax crop, stunting the growth of the stems by closely interlacing them, and he suggested to the discoverer the probability that all Dodder plants found on flax in this country would prove to be of this species, an opinion which subsequent observations seem to have confirmed.

The flowers in this species are large and succulent, more decidedly sessile than in *C. europæa*, fewer in a head, very pale in colour, and of greenish rather than reddish-yellow hue, with a membranous bract of a reddish colour under each head, but none under each flower; the calyx is large and spreading, its five acute teeth about as long as the corolla. Like the stems of its congeners, those of this Dodder turn from west to east, often embracing several flax plants in their coils, and twisting them together as in a mesh of cords. "Strictly speaking," Mr. Bowman remarks, "no station can be given for this species, as it can only come to perfection where flax is cultivated; for though ripe seeds which have been shed upon the ground may germinate the ensuing spring, the young plants soon die if the flax be not at hand on which to fix themselves. Accordingly, I could not find a single specimen in the same field the ensuing summer, 1837, the crop having been changed. This may account for a circumstance which occurred many years ago, and which puzzled me at the time, and also confirmed Sir Wm. Hooker's opinion, that it will only grow upon flax. I had sown some purchased flax-seed in a back border in my garden, the plants from which were infested with *C. europæa* (as I believed); I sowed some of the Dodder seeds among nettles in the corner of a field, and was disappointed at their not producing a single plant, though I now think it probable that they germinated and died away for want of their proper food. If botanists would search in fields of growing flax, or among purchased seed in spring, they would probably be rewarded by finding either living plants, or seeds of this troublesome parasite, which I suspect is not uncommon; and it would well repay the farmer to rid his flax-seed of this worst species of tares before sowing it. The seeds are large, nearly round, and would easily be detected among the flax."

Since the period in which this opinion was given it has become a well-known fact, that the seeds of this Dodder are continually being imported with foreign seed, often in company with the gold of pleasure, the darnel, the three-horned galium, and other plants which trouble the farmer. Professor Lindley, in some recent remarks on the subject, says also, that if flax be again sown on the same land, it is astonishing, however few the weeds might have been in the first instance, how greatly they become

augmented in the second sowing. "In 1853," says this botanist, "we examined a crop of flax grown from foreign seeds, which had in it a few of these weeds: seeds of this crop were sown again in another field on the same farm in 1854, but with a four-fold increase of all the above-named weeds, together with the usual British examples. The Dodder, indeed, which presented but a few isolated patches in 1853, in the following year became spread throughout the crop to its irreparable injury."

3. **Lesser Dodder** (*C. epithymum*). — Heads of many small flowers, sessile, and with bracts at the base; corolla with cylindrical tube, longer than the bell-shaped calyx; scales converging, as long as the tube of the corolla; style and stamens extending beyond mouth of corolla; annual. This is a very frequent plant on heath lands, winding its dark red threads in entangling meshes about the plants there, sometimes pulling down the yellow tormentil, sometimes lacing together whole clumps of the stems of the thyme, and other flowers which grow among the heather. But it is the furze-bush, the golden furze, which is the chief victim of this parasite, and we have seen during August and September large tracts of furze-clad land where the bushes were so bound about with its threads that they presented a most singular appearance, and the form of their branches was quite concealed, while not a yellow bud had found strength or room to expand, though on plants from which the parasite was absent many a fragrant blossom was spread out in luxuriant beauty. The flowers of this Dodder are very pretty; they are small, flesh-coloured, and so thick in texture that they look as if cut out of wax; they grow in dense clusters, but it is almost impossible to get away a mass of their blooms and stems from the prickly bough which they grasp so closely. It has been said that our word Dodder is from an old word signifying, to tremble, because with the least breath of wind the plant "doth dodder or tremble." In France the plant is called *Cuscute*, and the species growing on the flax had the old country name of *Goutte de lin*, flaxdrop; in Germany it is termed *Flachsseide;* in Holland *Warkruid;* and in Russia, *Pawiliza.* It seems to thrive well on any shrub to which it once adheres; and, according to Sweet, will flower freely, and become very handsome on plants in a hothouse. All countries, warm, cold, and temperate in climate, seem to produce Dodder. It is common in Sweden, on the Swiss Alps, in France, Germany and Italy; has been found in Egypt and India, and on the shores of the Mediterranean. The species are very acrid. though not now used medicinally, they were formerly much prized as remedies, and some writers think that they have as powerful properties as some plants of the Convolvulus family. The old herbalists, who called the Lesser Dodder the Dodder of Thyme, held that the parasite, partaking of the nature of the plant on which it grew, was more beneficial when found on that than on any other herb. One of them says, "He is a physician, indeed, that hath wit enough to choose his Dodder according to the nature of the disease and humour peccant." We find Michael Drayton saying—

> "Here Dodder, by whose help alone
> Old agues are removed."

As thyme was the "hottest herb" on which this plant was known to fix itself, so Dodder of Thyme was considered available for what were termed

"cold greefs" and "trembling of the heart." It was said to be good for "fainting and swooning, and helpful in all diseases and griefs of the spleen."

Professor Lindley mentions a gigantic species of Dodder, *C. racemosus*, a native of Afghanistan, which even preys upon itself; one of its masses half covered a willow-tree twenty or thirty feet high, and Sir J. D. Hooker saw a Dodder in Nepal which formed a golden web over date-trees. One or two other species, called *Sipo de Chumbo*, are articles of Brazilian pharmacy. Lindley mentions that the powder of the dried plants sprinkled over wounds is thought to be healing.

4. **Clover Dodder** (*C. trifólii*).—Heads of flowers small, sessile, and having a bract at the base; tube of the corolla cylindrical; scales converging; calyx narrowed below, as long as the tube of the corolla; annual. This plant is very similar to the last, differing from it in having rounded spaces between the scales, while in the last these spaces are narrow and acute. The stems are, however, of a more yellowish-red. It is found chiefly on clover in the Isle of Wight, and some other parts of England, bearing its small white flowers in June and July. It is supposed to have been introduced with clover-seeds from the Continent, but some botanists doubt if it is any more than a variety of the Lesser Dodder.

Order LVIII. BORAGINEÆ—BORAGE TRIBE.

Calyx in 5, rarely 4, deep divisions, not falling off; corolla wheel-shaped, bell-shaped, or salver-shaped, 5- or rarely 4-cleft, frequently having valves or teeth at the mouth of the tube; stamens 5, inserted into the corolla, and alternate with its lobes; ovary 4-parted, 4-seeded; style 1, rising from the base of the divided ovary; fruit consisting of 4, rarely 2, nut-like seeds, each enclosed in a pericarp. This order consists of herbs or shrubs, with alternate leaves without stipules, their surface covered with minute asperities, on which are seated hairs or bristles, and with flowers arranged mostly in one-sided spikes or cymes. Many of the plants are eminently beautiful, like the different species of Viper's Bugloss, and in many the young buds are rolled up at the termination of the spikes into a little coil, and are pink, while the expanded flowers are blue. Blue, purple, and red are the prevailing colours of the blossoms. They are not remarkable for useful properties, but several possess a slight degree of mucilage, and the roots of some, like the Alkanet, are used in dyeing. Many of the plants of the order are mere weeds, with little beauty.

1. VIPER'S BUGLOSS (*Échium*).—Corolla irregular, with an open mouth; stamens unequal in length. Name from the Greek *echis*, a viper, because the plants were supposed to cure wounds made by the bite of that reptile.

2. LUNGWORT (*Pulmonária*).—Calyx tubular, 5-cleft; corolla funnel-shaped, its throat naked; stamens enclosed within the corolla; filaments very short. Name from the Latin *pulmo*, the lungs, from its ancient use in pulmonary affections.

3. GROMWELL (*Lithospérmum*).—Calyx deeply 5-cleft; corolla funnel-shaped, its throat naked, or with 5 minute scales; stamens enclosed within

the corolla; filaments short; seeds stony. Name from the Greek *lithos*, a stone, and *sperma*, a seed, from its hard stone-like fruits.

4. SMOOTH GROMWELL (*Mertensia*).—Calyx 5-cleft, half the length of the corolla; corolla funnel-shaped; stamens protruded beyond the tube; anthers 2-lobed at the base; style becoming longer after flowering. Named from F. C. Mertens, a German botanist.

5. SCORPION GRASS (*Myosótis*).—Calyx 5-cleft; corolla salver-shaped, its lobes blunt, twisted when in bud, and its throat nearly closed by blunt scales. Name from the Greek *mys*, a mouse, *ous*, *otos*, an ear, from the form of the hairy leaves.

6. ALKANET (*Anchúsa*).—Calyx deeply 5-cleft; corolla funnel- or salver-shaped, with a straight tube, its throat closed by prominent blunt scales. Name from the Greek *encheuo*, to dye, from the use of the roots in dyeing,

7. BUGLOSS (*Lýcopsis*).—Calyx deeply 5-cleft; corolla funnel-shaped, with a bent tube, its throat closed by prominent blunt scales. Name from *lukos*, a wolf, and *opsis*, a face, from a fancied resemblance in the flower to the face of a wolf. Included by some authors in *Anchusa*.

8. COMFREY (*Sýmphytum*).—Calyx deeply 5-cleft; corolla bell-shaped, closed with 5 awl-shaped scales. Name from the Greek *symphyo*, to unite, from its supposed healing qualities.

9. BORAGE (*Borágo*).—Calyx deeply 5-cleft; corolla wheel-shaped, its throat closed with 5 short, erect, notched scales; stamens forked. Name, a corruption of *corago*, for *cor*, the heart, and *ago*, to bring, because it was supposed to give courage.

10. MADWORT (*Asperúgo*).—Calyx 5-cleft, with alternate smaller teeth; corolla funnel-shaped with rounded scales in the throat. Name from the Latin *asper*, rough, from the asperities of the leaves.

11. HOUND'S TONGUE (*Cýnoglossum*).—Calyx 5-cleft; corolla funnel-shaped, with a short tube, its mouth closed by prominent blunt scales; nuts flattened, prickly. Name from the Greek *kyon*, a dog, and *glossa*, a tongue, from the form of the leaves.

1. VIPER'S BUGLOSS (*Échium*).

1. Common Viper's Bugloss (*E. vulgáre*).—Stem herbaceous, without branches, rough with prickly bristles arising from tubercles; leaves narrow, tapering, and bristly; flowers in lateral spikes; stamens longer than the corolla; root spindle-shaped; biennial. All lovers of wild flowers hail with delight the sprays of bells which stand on the speckled and rough stem of the Viper's Bugloss in the months of June and July. Most stately, most brilliant of wild flowers, it rises to the height of two or three feet, having, when in a luxuriant condition, a spike of cymes more than a foot long. The colour of these bells varies from the richest and most intense violet-purple to a pale blue, or to bluish-pink, and now and then they are white, sometimes pure as snow, but more often having just such faint tint of blue as serves to remind us that the white flower is but a variety of the original blue blossom. The richly-honeyed flowers are great favourites with many insects, and owing to the fact that the stamens mature before the style, these by carrying pollen from older to younger flowers effect cross-fertilization.

Many botanists have agreed with the remark of the late Mr. Loudon, that this is the most beautiful of all the lovely wild flowers which our country can boast. There will always, however, be a difference of opinion in matters like these; and so long as early memories can find their sway in the heart of man, various flowers will be regarded as the loveliest. Some verses which Mary Isabella Tomkins has written for our volume in praise of flowers will, however, find a response in the breasts of all who love them:—

"A song of praise—in praise of flowers, from one who loves them well,
And joys to see them springing free in many a lonesome dell!
Sweet are they, sweet as childhood's smiles, welcome as boyhood's mirth,
The fairest, aye, and brightest things yet found upon the earth.

"I care not cultured flowers to seek; the simple and the mean,
The star-like daisy at my feet, the green grass stems between,
Is quite enough to stir my heart, and wake my humble powers,
To celebrate right gratefully God's goodly gift of flowers.

"They tell of one* who wander'd in a desert drear and lone,
Heart-sick and weary with long toil, uncheer'd by friendly tone;
With nought of comfort in his heart, nor hope he could descry,
And strong the evil thought within, to murmur and to die.

"When, lo, a tiny flower he saw, the capsule of a moss
That clothed a rock, flung carelessly his very path across:
Strange was the transport that it caused—his waken'd heart rose free,—
'The God who makes yon little flower, will surely care for me.'

"Oh flowers, pleasant flowers, your beauty and your grace
Art strives in vain to imitate, defeated in the race;
Fit playthings ye for childhood's years, fit gems for ladies' bowers,
Right gratefully, right lovingly, I sing the gift of flowers."

The plant grows most frequently on banks, chalky hills, or sea-cliffs; but it also, in Cambridgeshire and some other counties, grows among the corn. We have looked on its luxuriance in the corn-fields of that county, where it rises to a great height, but we never saw it superior in size, or equal in richness of hue, to the plant as it grows on the cliffs of Dover. It is there in great profusion, often covering large masses of the chalky soil. We have gathered from these cliffs specimens three feet and a half high, with the blossoms occupying a foot and a half of its upper portion. The spotted stem indicated to the men of other times that the Bugloss had been especially created to cure the bites of the speckled viper; and its seeds, shaped as they fancied like a viper's head, confirmed the promise of the stem. The flowers were considered cordial and refreshing, and, according to Parkinson, they were mingled with that of the borage, and were candied by gentlewomen into comfits. The plant grows in our country on sandy as well as on chalk or limestone soils; and Dr. Asa Gray, in his "Notes of a Botanical Excursion to the Mountains of Carolina," found that it had introduced itself in the extensive valley of Virginia most abundantly, along with another plant which is often its companion in Britain, the wild marjoram. "From the moment we entered the valley," says this writer, "we observed such immense quantities of *Echium vulgare*, that we were no longer surprised at the doubt expressed by Dr. Pursh, whether it were really an introduced plant. This 'wild foreign weed,' as Darlington, agriculturally speaking, terms this showy plant, is occasionally seen along the roadside in the Northern States; but here,

* Mungo Park.

1. COMMON VIPERS BUGLOSS.
Echium vulgare.

2. PURPLE FLOWERED B.
E. violaceum.

3. COMMON LUNGWORT.
Pulmonaria officinalis.

4. NARROW LEAVED L.
P. angustifolia.

Pl. 146.

for the distance of more than a hundred miles, it has taken complete possession even of many cultivated fields, especially where the limestone approaches the surface, presenting a broad expanse of brilliant blue. It is surprising that the farmers should allow a biennial like this completely to overrun the land."

The word Bugloss is from the Greek *bous*, an ox, and *glossa*, a tongue, suggested by the shape of the leaves. The French call this plant *La viperine*. It is the *Natterkopf* of the German; the *Slangekruid* of the Dutch; the *Echio* of the Italians, and the *Rumian* of the Russians. The Spaniards term it *Hierba de la vibora*.

2. **Purple-flowered Viper's Bugloss** (*E. violáceum*).—Stem herbaceous, branched, downy, and having hairs rising from minute tubercles; root-leaves oblong, stalked, upper ones oblong, heart-shaped, somewhat clasping; spikes of flowers long; stamens scarcely longer than the corolla; biennial. This handsome plant is very distinct from our common Viper's Bugloss. Its flowers, which are of rich violet-blue, expand in July; their stamens are of unequal length, some being very much longer than others: the root is of reddish colour. The plant is abundant in the sandy soils of Jersey, and also in parts of Cornwall. It is also known as *E. plantagineum*, on account of its plantain-like leaves.

2. LUNGWORT (*Pulmonária*).

1. **Common Lungwort** (*P. officinális*). — Root-leaves egg-shaped, roundish, somewhat heart-shaped, stalked, upper leaves oblong and sessile; perennial. This is a rare plant of woods and thickets, and usually an outcast of gardens, though probably naturalized in some places. It is a common flower of the garden in spring, having its large leaves marked conspicuously with white spots. Its stem is about a foot high, and the whole plant is more or less covered with short hairs. The young buds are of a pink colour, and in May they expand into the violet-blue flowers, which, growing in a cluster somewhat resembling the cowslip, induced our fathers to call the plant either Bugloss Cowslip or Jerusalem Cowslip The resemblance of the spotted leaf to the lungs when under disease in all probability procured for the plant its familiar name of Lungwort, which is synonymous nearly throughout Europe, the French calling this herb *Pulmonaire;* the Spaniards, *Pulmonaria;* the Italians, *Polmonarie;* the Germans, *Lungenkraut;* and the Dutch, *Longekruid*.

Mr. Loudon justly remarks: "It must not be inferred, from English names of this sort having been applied to plants, either that Lungwort was ever used in this country for the lungs, or liverwort for the liver. The truth is, that the old herbalists, or translators of the classical writers upon natural history, made English names after their Latin terminations, without inquiring whether such continued to be applicable or not: their less-informed successors had no difficulty in finding those virtues in the plants which were indicated by the names of the translators." In this case the plant was, however, extolled and used in this country, and doubtless also on the Continent, and it is still in villages believed to be good for the lungs, among the descendants of the "Simplers" of the olden times. Both the leaves and fruit of the plant yield, when newly gathered, a slight mucilage, destitute of odour,

somewhat astringent in flavour, and believed to be a good demulcent. It is not, however, of any service, except as a soothing and cooling drink, its refrigerant properties being due to the nitre contained by this, as well as by the borage and other allied plants. So much of this salt is found in the Lungwort, that when burnt it yields one-seventh of its weight in ashes. In the north of Europe it is commonly boiled for the table, and according to John Ray, it was formerly thus used in Scotland. Some of the garden species of *Pulmonaria* are very pretty. Such is the Virginian Lungwort (*P. virginica*), which in dry springs is a very ornamental plant, and which is by some writers considered but a variety of this species. It is not a native of these islands, but has had a place in our gardens for so long that early escapes have got thoroughly naturalized in a few of our woods and copses.

2. **Narrow-leaved Lungwort** (*P. angustifólia*).—Leaves all lanceolate, upper ones sessile, lower ones stalked; perennial. This is a rare plant also of woods and thickets, and apparently truly wild. It has been found in Hampshire and Dorset, and is distinguished from the Common Lungwort by its taller stem, and its greater degree of down, as well as by the form of the leaves, which are also generally free from white spots. It is not, however, very distinct from the former plant. Its flowers are purple, and its buds pink; and it is in blossom from March to June.

3. Gromwell (*Lithospérmum*).

1. **Common Gromwell** (*L. officinále*).—Stem erect, very much branched; leaves broadly lanceolate, acute, nerved, rough above, with bristles closely pressed to the surface, hairy beneath; tube of the corolla as long as the calyx; perennial. This plant would have little to interest the wanderer in the fields who noticed only the hue and fragrance of flowers. It grows on the rubbish-heap, or on dry banks, often among the goose-foots, the dog's mercury, and other unattractive plants, and is in England very frequent, though rare in Scotland. The stem is a foot or a foot and a half high, the leaves very rough, the flowers small, scentless, and of a pale dingy yellow, expanding in June. But this dull-looking plant is very interesting to the botanist, from the singular stony covering of its seeds. These little nut-like fruits are at first of a dull greenish-white, but afterwards become of a greyish colour, slightly tinged with brown, and are bright and glossy like porcelain, and so hard that it is difficult to break them. This membrane, when analyzed, is found to contain a large quantity of flinty material, making the nut like a little stone. Hence it was called by early French writers *Herbe aux perles;* hence also its botanic and English names, the latter being from the Celtic *graun*, a seed, and *mil*, a stone. One or other species of the Gromwells is known pretty well throughout Europe. In France, the plant is commonly called *Le Grenil;* the Spaniards term it *Lithosperma;* and both the Germans and Dutch have a reference to its stony fruits in their names of *Steinsame* and *Steenzaad*. In winter, when the green portion of the plant has died away, the woody part of the stem and branches remains, and is decked with the pearl-like seeds, presenting a most singular appearance.

2. **Corn Gromwell,** or **Bastard Alkanet** (*L. arvénse*).—Stem erect,

1. COMMON GROMWELL.
   Lithospermum officinale
2. CORN GROMWELL.
   L. arvense
3. CREEPING GROMWELL.
   L. purpureo cæruleum.
4. SEA SIDE SMOOTH GROMWELL.
   L. maritimum.

branched; leaves lanceolate, acute, hairy; calyx a little shorter than the corolla; annual. This species occurs in corn-fields and on waste ground, bearing white flowers in May and June. Its roots, which are of a bright red colour, will impart that tint to linen or paper. The plant is a native of Europe, Asia, Africa, and some parts of America. The country girls in the north of Sweden give, on festive days, a brighter tint to their cheeks by a rouge made from its roots.

3. **Creeping** or **Purple Gromwell** (*L. púrpureo-cærúleum*).—Barren stems prostrate; leaves lanceolate and acute; tube of the corolla much longer than the calyx; perennial. This species is easily distinguished from the others by the large, handsome bright blue flowers, which, in June and July, grow on its erect flowering stems. It is a very rare plant of chalky soils, found in thickets near Greenhithe, in Kent, about Mary Church, Devon, and in the woods around Cheddar, in Somersetshire, where it grows plentifully over a large extent of soil. The nuts are highly polished, and of a most pearly white hue, and somewhat wrinkled.

4. Smooth Gromwell (*Merténsia*).

Sea-side Mertensia (*M. marítima*).—Stem prostrate, branched; leaves egg-shaped, acute, rough, with hard dots, fleshy, and glaucous; nuts smooth; perennial. This is a rare plant on the English coast, growing only on our western shores. It occurs occasionally, also, among the pebbles or sand of some parts of the Welsh coast; but the northern and western shores of Scotland are the places where it may be sought with most success. Dr. Johnston, in his "Flora of Berwick," says, "It grew, in the time of Ray, at Scammerston Mill, between the Salt-pans and Berwick; but we believe it will now be sought for in vain." The learned Sir Andrew Balfour had previously described it as existing there: there can be no doubt, therefore, that this beautiful plant really once adorned that spot. Dr. Walker, referring to this plant, says that it is found flowering in July at Icolmkill, and that it is very frequent up the stony beach of most of the Western Islands, where it highly ornaments the shores, not only by its lovely flowers, but by the bright sea-green foliage. It was considered by Dillenius to be the most beautiful of all British flowers. It was observed by Linnæus to be sometimes annual, and in other cases perennial; but on the shores of the Hebrides it appears to be constantly biennial. Upon the coast of Iceland, also, where the plant occurs sometimes in great beauty, it is probably an annual plant; and in a warmer climate than that of Britain, it would probably prove a perennial.

The flowers of this handsome Smooth Gromwell are in racemes of bright purplish blue colour, with small yellow raised dots in the throat of the corolla. The stems and foliage are wholly covered with whitish-green powdery bloom; the leaves are fleshy, and without bristles; and when the bloom is rubbed away, the hard dots appear, which become whiter and more apparent as the plant withers, and which in the herbarium are white and hard like little stones on the dark, almost black, remains of the leaves. The flavour of the leaves resembles that of oysters.

5. SCORPION-GRASS (*Myosótis*).

* *Hairs on the calyx, all straight, and closely pressed to the surface.*

1. **Creeping Water Scorpion-grass, or Forget-me-not** (*M. palústris*). —Calyx cleft to about a third of its length, open when in fruit; teeth short, triangular; limb of the corolla flat, longer than the tube; style about as long as the calyx; stem angular; leaves somewhat blunt; root creeping. The pale but bright blue enamel-like flowers of this plant often stand up among the rich green leaves, which form masses on the borders of our rivers and streamlets, or grow partly under their crystal waters. Beautiful, indeed, are the little islets on the streams from June to August, when the grasses and sedges seem so much the greener from the refreshing influences of the moisture, and bright flowers mingle among them. Mr. Noel well describes such places:—

"Swift dragon-flies with their gauzy wings
Flit glistening to and fro;
And murmuring hosts of moving things
O'er the waters gleam and glow:

"There are spots where nestle wild-flowers small,
With many a mingling gleam;
Where the broad flag waves, and the bulrush tall
Nods still to the thrusting stream.

"The Forget-me-not on the water's edge
Reveals her lovely hue;
Where the broken bank beneath the sedge
Is embroider'd with her blue."

The flowers of this plant are among the largest and most beautiful of the species, though they are not quite so large as those of the Rock Scorpion-grass. They have a yellow eye, and a small white ray at the base of each segment; the stem is about a foot high, and both that and the leaves are of uniform bright green, the stem being more or less downy, or sometimes quite smooth. The little buds, which before expansion are pink, and form a small coil at the top of the flower-stalk, gave to this and the rest of the genus the name of Scorpion-grass: this form of cyme being also known as the scorpioid cyme, the curl having suggested the tail of a scorpion. The legend to which it owes its other name, as given by Mills, in his "Origin of Chivalry," is well known, as is the different story by Miss Strickland; yet our account of the flower would be incomplete were we to omit their repetition. According to the former writer, a knight was wandering by a stream with the lady whom he loved, the music of his words according well to the music of its tune. The maiden, glancing into the clear waters, saw the enamelled blue flowers, and wished to possess them. They must have grown at some distance from the shore, probably on a little islet in mid-stream, or on the farther bank; and, as it is said that woman loves best that which is most hard to come at, this circumstance may have added to her desire. The hapless man, plunging into the stream to gather them, was borne away by the current, but, making one last effort, he threw the flowers on the shore, exclaiming, "Forget me not!" and sank beneath the waters. It would be hard to criticise too minutely the touching tale, which is current throughout Europe, and which Bishop Mant has pleasantly told in verse, concluding with these lines:—

1. CREEPING WATER SCORPION GRASS
   Myosotis repens
2. C. W. S. G. OR FORGET ME NOT
   M. palustris
3. TUFTED WATER S. G.
   M. cæspitosa
4. ROCK S. G.
   M. alpestris
5. UPRIGHT WOOD S. G.
   M. sylvatica
6. FIELD S. G.
   M. arvensis
7. EARLY FIELD S. G.
   M. collina
8. YELLOW & BLUE S. G.
   M. versicolor

Pl. 148.

"For the lady fair of the Knight so true
Still remember'd his hapless lot;
And she cherish'd the flower of brilliant hue,
And she braided her hair with the blossoms blue,
And she call'd it, 'Forget-me not.'"

Miss Strickland's narrative of the origin of the name is almost as interesting as this, and we must confess to believing it more probable. Henry of Lancaster, she considers, was the first who gave to the Forget-me-not its emblematic and poetic meaning, by uniting it, at the period of his exile, one his collar of S S with the initial letter of his *mot* or watchword, *Souveigne-vous de moi.* Henry exchanged this token of good-will and remembrance with his hostess, who was at that time the wife of the Duke of Bretagne. Mrs. Abdy has written some verses for our volume, embodying this narrative:—

"Forget-me-not—thou flower to poets dear,
They ever place thee in a sylvan scene,
Amid the reeds that fringe the streamlets clear,
Or on smooth meadow banks of vernal green:
Few bear in mind that regal pride and power
Were once connected with the simple flower.

"For me, the page of History I scan,
And give to thee, sweet flower, distinction due;
Henry of Lancaster, a banish'd man,
Arises in his exile to my view,
Condemn'd by royal Richard's stern command
Awhile to quit his home and native land.

"Yet were his daring hopes unchanged, unquell'd;
Eager the ruler of our realm to be,
Counsel with friends and followers he held
In secrecy:—his token-flower was thee;
Link'd with a watchword, meet for court or cot,
The touching, deep appeal, Forget me not.

"Time pass'd; again he sought his native land,
Not, as of old, oppress'd by Fortune's frown;
'Mid bold adherents, a devoted band,
He fought—and won the prize of England's crown,
A crown in part attain'd, sweet flower, through thee
By thy mute spell, thy mystic agency.

"Those times are gone—and now the passing throng
Connect thee with the sighs of those who part,
With the sweet burden of a plaintive song,
With the soft breathings of a loving heart:
Nor deem that once thy lowly blossom met
The favour of a proud Plantagenet!

"Perchance 'tis better thus:—Earth's lofty things—
The laurel trophy gain'd in battle-strife,
The pomp of courts, the pageantry of kings—
Pervade not our familiar walks of life;
But Love and Truth diffuse their gentle sway
O'er the calm course of each returning day.

"I will not number thee with regal flowers,—
No, still remain in meek and humble grace,
A dweller in green vales and leafy bowers,
A silent witness of the fond embrace,
When friends or lovers part in some lone spot,
And sigh in faltering tones, 'Forget me not.'"

The plant is as much prized all over the Continent as in this kingdom, and is generally regarded throughout Europe as the Forget-me-not. The Danes call it *Forgjact mij ej.* Coleridge remarks of it, "It has the same name,

Vergissmeinnicht, all over the empire of Germany, and I believe in Denmark and Sweden," though several of its continental names, like ours, refer to its coiled buds, or to the leaf which gives it the name of Mouse-ear. Thus, the French call it *Scorpionne*, or sometimes *Grémillet*, and *Oreille de Rat;* the Italians, *Orecchio di topa;* the Spaniards, *Miosota.* The German plants the flower about the tombs; the Frenchman portrays the cluster on paper, and writes beneath the bouquet, *Ne m'oubliez pas;* and though a wild flower in France, as in our country, yet little pots of its blossoms are often to be seen in the flower-markets of Paris, as well as small gathered bouquets, which are sold for the purpose of making the gift of love or friendship.

Coleridge laments that the flower should pass away so early, though it often lingers till August:—

> "The tedded hay, the first-fruits of the soil,
> The tedded hay and corn-sheaves in our fields,
> Show Summer gone ere come. The foxglove tall
> Sheds its loose purple bells, or in the gust,
> Or when it bends beneath the up springing lark,
> Or mountain finch alighting. And the rose,
> In vain the darling of successful love,
> Stands like some boasted beauty of past years,
> The thorns remaining and the flowers all gone.
> Nor can I find, amid my lonely walk
> By rivulet or spring, or wet road-side,
> That blue and bright-eyed flow'ret of the brook,
> Hope's gentle gem! the sweet Forget-me-not."

Doubtless, as Professor Burnett remarks, the flower owes some of its popularity to its familiar name, but it probably owed that name, too, to its modest loveliness. Though it is never so handsome or luxuriant when in dry places, yet it will sometimes thrive for a time in gardens, and may be cultivated in pots. It is increased by separating the roots, and when planted on a moist free earth, it will blossom well, and may be used for a season to adorn our houses, or may serve for the gentle usages of sentiment.

In the Netherlands this Myosotis is often made into a syrup, and given as a remedy in pulmonary affections; but it can be of little service. It is said that a decoction of its juices hardens steel; and that if edged tools of that metal be made red-hot, and then quenched in the juice or decoction of this plant, and this be repeated for some hours, the steel will become so hard as even to cut iron or stone; but we have not been able to verify this statement.

2. **Creeping Water Scorpion-grass** (*M. répens*).—Calyx cleft to about the middle, open when in fruit; teeth narrow, lanceolate, and acute; limb of the corolla flat, longer than the tube; style as long as the calyx; down of the stem spreading; stem slightly angular; leaves somewhat acute; perennial. This plant, which grows in boggy places, is by some botanists thought to be a sub-species of the last. It has pale-blue flowers in leafy clusters, from June to August.

3. **Tufted Water Scorpion-grass** (*M. cæspitósa*).—Calyx open when in fruit; teeth narrow, lanceolate, bluntish; limb of the corolla equalling the tube; stem round, with its down closely pressed to the surface; leaves usually blunt; annual or biennial. This plant occurs in many watery places, bearing in May and June clusters of bright blue flowers, which vary in size.

but are usually smaller than in the preceding species. The name for this species is not a good one; for though it grows in a crowded manner, it is never really tufted.

* * *Hairs on the calyx tube spreading.*

4. **Upright Wood Scorpion-grass** (*M. sylvática*).—Calyx with spreading curved bristles, deeply 5-cleft, divided more than half way down, closed when in fruit; limb of the corolla flat, longer than the tube; style nearly as long as the calyx; leaves oblong, lanceolate, stalks of the lower leaves dilated; perennial. This is a rare species, of dry, shady places, chiefly in the north of England and Lowlands of Scotland, though found occasionally in Kent and other counties. It has large, handsome blue flowers, from May to August.

5. **Rock Scorpion-grass** (*M. alpéstris*).—Calyx deeply 5-cleft, open when in fruit; limb of the corolla flat, longer than the tube; leaves oblong, lanceolate, those of the root on long stalks; perennial. This beautiful species is a mountain plant, growing at a great elevation on the Breadalbane mountains. Mr. Backhouse also found it in great abundance on the high limestone at the east end of Mickle Fell in Teesdale, flowering in June. It has large handsome leaves, and most lovely large flowers of pale but bright blue, which Mr. Babington says are sweet-scented in the evening. They are the handsomest of all our native species, and grow at first in such dense clusters as almost to form heads, though they afterwards become racemed. They expand in August and September, on a stem about half a foot high. Many writers consider this species an Alpine form of *M. sylvatica.*

6. **Field Scorpion-grass** (*M. arvénsis*).—Calyx half 5-cleft, closed when in fruit, with curved bristles; limb of the corolla concave, equalling the tube; style very short; flowers on short stalks in racemes; leaves oblong, acute, lower ones somewhat egg-shaped and blunt; annual or biennial. This is the most frequent of all the species, and, like all the others, it has the hairy leaves which suggested the name of the genus. It is in blossom from June till September, and its brilliant small sapphire blossoms are often given in country places in little bouquets by those who consider it the forget-me-not. The stem varies from six inches to a foot and a half in height, and the whole plant is rough with spreading bristles. In very shady places its flowers are sometimes much larger, when it is often mistaken for *M. sylvatica.* It is, like the other species, somewhat mucilaginous and astringent; and in times when such plants were used either for pulmonary affections or for external emollient applications, this species, as being the most common, was very generally selected for use in inflammatory disorders. Country people in Kent still make a decoction of its leaves for curing coughs.

7. **Early Field Scorpion-grass** (*M. collína*).—Calyx covered with spreading, hooked bristles, open when in fruit; limb of the corolla concave, shorter than the tube; leaves oblong and blunt, lower ones inversely egg-shaped, their hairs straight; annual.

This pretty but small plant is not uncommon in April and May, on dry banks, tops of cottages and walls, but is not large enough to attract the notice of any who are not observant of wild flowers. The whole plant rarely

exceeds three inches in length ; the stems spread almost on the ground, and terminate in little clusters, with one solitary, distant flower in the axil of the upper leaf. The flowers are of uniform blue, the buds never tinged, as in most of the Scorpion-grasses, with pink. When the flowers first appear they are closely nestled among the leaves, but the stem shortly lengthens into clusters, and before June the plant has withered away. Mr. Bowman has remarked, that the flowers do not expand till, by the uncurling of the raceme, they are brought into a perpendicular position, but continue open till the next two or three above them are expanded.

8. **Yellow and Blue Scorpion-grass** (*M. versícolor*).—Calyx with spreading, curved bristles, closed when in fruit ; cluster on a long, leafless stalk ; stalk of the fruit erect ; limb of the corolla shorter than the tube ; leaves narrow, oblong, somewhat acute, upper ones frequently opposite ; annual. This plant, which is not uncommon on banks and fields, often grows on a more moist soil than the last species, though sometimes, like it, on dry sunny places. It is a very distinct species, varying in height according to the soil, from three to six inches, and blossoming in April and June. The stem is leafy below and naked above, and its little cluster is coiled up very closely while in bud, opening into most lovely little flowers, which are very singular as to colour, being at first yellow, then turning blue. It is interesting to notice how the calyx becomes converted into a seed-capsule, covered with hooked hairs, which catch in the fur of mammals, and so detach the calyx from the plant and disperse the highly-polished nutlets. This applies only to the terrestrial species ; those that grow in the water do not have the hairs of the calyx hooked, the seeds being efficiently distributed by water-carriage.

6. Alkanet (*Anchúsa*).

1. **Common Alkanet** (*A. officinális*).—Leaves lanceolate, rough and hairy : flowers in one-sided spikes ; bracts egg-shaped and pointed ; calyx segments longer than the tube. This is a rare plant of waste grounds. Its stem is one or two feet in height, and its deep purple flowers expand in June and July. Though so unfrequent in our country, this Alkanet shows its richly tinted flowers in abundance in the southern parts of France, in Germany, and Switzerland, where it is to be seen everywhere, on uncultivated fields, roadsides, and old walls. A large quantity of gum is contained by the roots, which when boiled yield a demulcent medicine, once very popular both in this country and on the Continent.

The roots of most of the Alkanets furnish some slight degree of red colouring matter, but this abounds in the roots of the species called *A. tínctoria*, which is the Common Alkanet, or Orcanette, used by druggists ; and the red colour obtained from them is employed for giving its hue to lip-salves, oil, and wax. It is also commonly extracted for imparting a colour to wine sold under the name of port, and also in staining corks. This species is a native of Italy, Spain, and the south of France, and is also cultivated in the last-named country for various uses. Among the Romans the roots of the Alkanet were in great request in staining wool, previously to giving it that rich purple hue so prized in ancient Rome. The colouring matter of the Alkanets has been called by some chemists *pseudo-alkannin*, and though found

1. COMMON ALKANET.
Anchusa officinalis
2. EVERGREEN ALKANET.
A. sempervirens
3. SMALL BUGLOSS.
Lycopsis arvensis
4. COMMON COMFREY.
Symphytum officinale
5. TUBEROUS COMFREY.
S. tuberosum

in great abundance in the external part of the root, is almost absent from the internal portion. Beckmann says of it: 'A solution of spermaceti in sulphureous ether, tinged with Alkanet root, which solidifies at 50° F., and melts and boils with the heat of the hand, is supposed to be the substance which is used at Naples when the blood of St. Januarius melts spontaneously, and boils over the vessel which contains it." The Common Alkanet is not a native, but it is frequent in our gardens, and probably in the few places in which it grows apparently wild, it originally escaped from cultivation.

The bristles which cover the stem and leaves of our Common Alkanet are far more stiff and sharp in some of the other species. They arise from a minute stony base, which, by the aid of a lens, is seen to consist of a cluster of very hard cells of cellular tissue. These rough tubercles become in all the species more apparent when the plant grows older.

2. **Evergreen Alkanet** (*A. sempervírens*).—Leaves egg-shaped, lower ones upon long stalks; flower-stalks axillary; flowers salver-shaped, in short spikes; perennial. This is a stout bristly plant, about one or two feet high. Its leaves are of rich deep-green colour, and the flowers, which expand in May and June, are large, and of an intense azure blue. It is a rare plant, sometimes found among ruins and by road-sides, where it doubtless in many cases originated from some neighbouring garden; but though not generally considered as a wild plant, it appears to be truly naturalized in some parts of Yorkshire, and it is by no means unfrequent in hedges in Devonshire. The French call the Alkanet *La Buglosse;* the Germans, *Ochsenzung;* the Dutch, *Ossetong;* the Italians, *Ancusa.*

7. Bugloss (*Lýcopsis*).

Small Bugloss (*L. arvénsis*).—Leaves lanceolate, toothed, and wavy, very bristly; calyx erect while in flower; annual. The leaves of this plant are of the richest dark-green hue, but so rough and hairy that the gatherer of wild flowers hesitates ere he takes it for his nosegay. The hairs or bristles stand on white, hard tubercles, very apparent in the older leaves, and the lower leaves are lengthened into stalks. The flowers, which grow in curved clusters, expand in June and July, are of the most brilliant blue, very small for the size of the foliage, and differing little from those of the Alkanet, except in the remarkable circumstance of having the tube of the corolla bent. The French call this plant *Lycopside;* the Germans, *Krummhals;* the Portuguese, *Liden oxetunge;* and the Dutch, *Wolfschyn.* This last, as well as the scientific name, has a reference to the fancied resemblance of this flower to the face or eye of a wolf; but he must have had a very active fancy to whose mind the resemblance was first suggested.

8. Comfrey (*Sýmphytum*).

1. **Common Comfrey** (*S. officinále*).—Leaves egg-shaped and lanceolate, tapering at the base, and running down the stem; flowers drooping, in two-forked clusters; root-stock branched, perennial. This plant, which is very common on the borders of rivers, is not likely to be overlooked by any rambler there. Not that the flowers of the Comfrey are at all showy, but the stem is two or three feet high, and branched, and it has large, strongly-

veined leaves, which run down into winged appendages to the stem. From May to August clusters of white, purple, pinkish, or greenish drooping bells may be seen upon the plant, but they are not to be gathered unwarily, on account of the bristles which beset both stem and foliage. The plant is often abundant on the river's brink, for its brittle root extends itself widely, and is very tenacious of life, every little remnant of it sending up a young shoot above the soil. This circumstance renders the plant very troublesome in a garden. It is now chiefly to be found in the cottage garden, but it was very generally cultivated in former days, on account of its supposed vulnerary qualities, a property to which we find an allusion in several of its Continental names, as well as in our old one of Great Consound. The French call it *Consoude;* the Italians, *Consolida;* the Spanish, *Consuelda major;* the Germans, *Beinwell;* and the Dutch, *Smeerwortel.* All parts of the plant, especially the roots, contain a large quantity of mucilage, so that the Comfrey is fitted for all the purposes to which we should apply the marsh mallow; every part, too, is nutritive, and the roots have a sweetish flavour. The decoction of this herb was formerly used not only for "griefes of the lungs," but for various other maladies, and it has also been used by dyers to extract the colouring matter from gum lac. The leaves are said by Dr. George Johnston to give a grateful flavour to cakes and panada, and to be, when boiled, an excellent vegetable; they should be gathered while young, when they form a substitute for spinach; the young shoots, blanched by being forced through heaps of earth, may be eaten like asparagus, which they resemble in flavour, though they are not so delicate as that vegetable.

Professor James Buckman, who made many valuable observations on grasses and other plants, especially serviceable to the farmer, observes that some years since the Prickly Comfrey of the Caucasus (*Symphytum asperrimum*) was greatly recommended for cultivation as the green food of cattle, and that it soon grows to a great height in the garden. He adds, that while this plant was growing, he used sometimes to amuse himself by taking branches of it into the meadows to the cows, and that it was highly curious to see how immediately they surrounded him, and how eagerly they ate the plants; and Dr. Voelcker, who analysed this Comfrey, both in its fresh and dried states, declared it to be his opinion that it was very nutritious to these animals.

Professor Buckman says: "On introducing the *S. asperrimum* to my botanical garden, it struck me that, notwithstanding the latter is known as a Caucasian species, which was introduced as a garden plant on account of the beautiful colour of its flower-bells, yet that the former scarcely presented those marked differences which should belong to species. I therefore determined to plant some specimens of *S. officinale,* concluding that if I could get a plant from the waterside to grow in an upland district, remote from water, so great a change of circumstance would, at least, exert great influence upon its growth. Accordingly, a plant with white bells was introduced into the Botanic garden, which at once grew abundantly, and the following year was subdivided into several sets, which flowered; but this season the flowers became stained with a dull reddish-blue tinge, and each season great changes have gone on in this plant; so that, in fact, in the summer of 1853, it was scarcely distinguishable from the Prickly Comfrey." Subsequent observations

do not appear to have confirmed Professor Buckman's views, and the two forms are still regarded as distinct species. They are found, however, to have exactly the same properties; and as the wild Comfrey seems, when brought from its native river side, to improve and not to degenerate under culture, it may some day, as Professor Buckman believes, become a valuable addition to the plants now used as fodder.

2. **Tuberous Comfrey** (*S. tuberósum*).—Stem scarcely branched; leaves oblong, narrowed below; stem-leaves lanceolate, upper ones generally in pairs, large, and running slightly down the stem; root-stock short, perennial. This species is common in Scotland, on the borders of rivers, and in shady woods, but is rare in England. It is a smaller and more slender plant than the preceding, and has yellowish-white flowers in June and July It differs in the character of the root-fibres, which are fleshy in the case of *S. officinale*, and slender in the present species.

9. Borage (*Borágo*).

Common Borage (*B. officinális*). — Stem-leaves tapering below into stalks, eared at the base; root-leaves inversely egg-shaped, narrowed below; whole plant rough with whitish tubercled hairs; biennial. The Borage is a very handsome plant, when, from June to September, its brilliant blue flowers form terminal clusters. Its stem is about two feet high; both that and the flower-stalks often tinged with red, and, like the leaves, it is rough, with sharp tubercled bristles. The flowers are large, their azure petals varied by the prominent purplish-black anthers. The Borage may often be found near houses and in waste places, doubtless having in many cases escaped from the garden; but although not indigenous, it seems quite naturalized on some spots. It is an old garden flower, and has a place in the border both on account of its blossoms and for its various uses. Bishop Mant says—

> "Or would you deign—as who that woos
> Boon Nature's favours would refuse?—
> The dusty pathway's side to try,
> Or rubbish heap? With bright blue eye
> Your pains the bugloss will repay,
> And, famed for driving care away,
> Dipp'd in a broader brighter blue,
> Rough Borage."

But it would need the pen of one of those undoubting writers, the herbalists, properly to set forth the virtues for which this plant was renowned. The adage,

> "I, Borage, always bring courage,"

was received in all good faith by our ancestors, who deemed this plant one of the four "cordial flowers," which most deserved their esteem for cheering the spirits; the others being the rose, violet, and alkanet. They put the Borage blossoms and young shoots in soups, pickled the tender leaves, or ate them in salad; candied the bright azure petals into sweetmeats; mingled them with wine, water, lemon, and sugar, into a beverage, yet liked by some, and still called by its old name of "cool tankard"; and having ate or drank the Borage, went forth to work or to warfare with good hope of success.

Bacon, referring to this plant, says, "If the leaf of Burrage be infused long it yieldeth forth but a raw substance of no virtue: therefore suppose if in the must of wine or wort of beer, while it worketh, before it be tunned, the Burrage stay a short time, and be often changed with fresh, it will make a sovereign drink for melancholy passion." Pliny had long before said, that wine in which the plant was infused produced very exhilarating effects; and many writers think that the word *borago* is a corruption of *corago*; from *cor*, the heart, *ago*, to bring. Whether the name of Borago was, however, originally applied to this plant, may be doubted. Beckmann, who has a learned disquisition on the subject, after remarking that since the fourteenth or fifteenth century it had been sown for its various uses in cooking, says, "This plant was not known to the ancients; for the conjecture that it is what they called *buglossum* is not very probable. As far as I have been able to learn, Nicholas Myrepsus, who lived in the beginning of the fourteenth century, is the first who uses the [Greek] name *pourakion*, which certainly means *borago*. But who knows whence this writer, who introduces in his work a great many new, inexplicable names, some of them formed from the Greek, Latin, or Italian, obtained that appellation? Some of the old botanists have conjectured that it is derived from the word *corago*, which Apuleius, whose period is uncertain, gives as a synonym of *buglossum*. Some think that the reading in Apuleius ought to be *borago*, and others assert that *corago* is the true name, and arose from the quality which the plant has of strengthening the heart; consequently we ought properly to read *corago*, and not *borago*. It is probable that our forefathers, under the impression that their Borage was the buglossum of the ancients, and therefore had the property of strengthening the heart, threw the flowers into wine, that their spirits might by these means be more enlivened. Our Borage is certainly a foreign plant, and Cæsalpinus says that it was brought from other countries into Italy. Linnæus positively states that it first came from Aleppo, but I have not yet been able to find on what authority this assertion was founded. At present, at least in the German cookery, Borage is no longer used"

The stems contain nitre, and the whole plant readily gives its flavour even to cold water. The French call the plant *Bourrache*; the Germans, *Borago*, the Dutch, *Bernagie*; the Italians, *Borragine*; and the Spaniards, *Borraja*

10. Madwort (*Asperúgo*).

German Madwort (*A. procúmbens*).—Stems angular, prostrate, rough with prickles; leaves oblong, somewhat lanceolate; lower ones stalked. This little prostrate annual plant is less frequent in Britain than in most European countries; for though bearing the name of German Madwort, it is found almost all over Europe, from Lapland to the Mediterranean. It grows on waste places, chiefly in the north of this kingdom, as in various parts of Durham and Northumberland; but it is an introduced plant, and it occurs very sparingly. It is peculiarly rough in all its parts, its angular stems being thickly set with hooked prickles. Sometimes the leaves are solitary, or they are opposite, or they grow in little tufts. The solitary, small, but bright flowers appear in June and July, and peep from the axils of the upper

1 COMMON BORAGE.
Borago officinalis.
2 GERMAN MADWORT.
Asperugo procumbens.
3 COMMON HOUNDS TONGUE.
Cynoglossum officinale.
4 GREEN LEAVED HOUNDS TONGUE.
C. sylvaticum.

Pl. 150.

leaves. From its name of Madwort we might infer that it was a fancied remedy for mental disease; it is also one of several of our wild flowers called in some country places bugloss. After the flowers have been fertilized the five-lobed calyx increases greatly in size, and becomes transformed into two triangular lobes with jagged edges. These lobes are applied to each other, face to face, and so protect the ripening seeds within. The French call it *Porte-feuille;* the Germans term it *Scharfkraut;* the Dutch, *Scherpkruid;* the Italians, *Asperugine.* It is the *Rapelle* of the Danes, and the *Ormögen* of the Swedes.

11. Hound's-tongue (*Cynoglóssum*).

1. **Common Hound's-tongue** (*C. officinále*).—Lower leaves elliptical, stalked, covered with down; upper ones lanceolate, narrowing below, somewhat heart-shaped, half clasping; flowers in racemes, without bracts; biennial. The flowers of the Hound's-tongue are of most peculiar tint—a tint showed by no other native blossom. They expand from June to August, and are of dull reddish-purple, of the shade commonly called claret colour; the petals veined. The fruits which succeed them are very singular in form, very rough; the nuts are flattened in front, and surrounded by a thickened prominent margin, and the prickles so firm and thick that they are like burs. The whole plant has a strong and disagreeable odour, like that of mice.

We find that this flower has, in several European countries, a name synonymous with ours. It is the *Hundizunge* of the Germans, and the *Hondstong* of the Dutch; while the Portuguese call it *Lingua de Cao;* the Italians term it *Cinoglossa,* and the French *Cynoglosse.* The whole plant is very soft and downy, of an unvarying greyish-green colour, and the form and texture of the leaf must have originated its familiar names. Mizaldus said that if a portion of the plant were laid beneath the feet, it would prevent dogs from barking at the wearer; but so far as we have been able to discover, dogs seem quite unconscious of its presence. It was formerly thought efficacious in many disorders, and the leaves were especially directed to be applied to the wound made by the teeth of a mad dog. Culpepper said of the plant, "It is called Hound's-tongue because it ties the tongues of hounds; whether true or not, I never tried, yet I cured the biting of a mad dog with this only medicine." A decoction of the roots, as well as an outward application of them, is recommended by some modern physicians in cases of enlargement of the joints. Professor Lindley remarks that some writers consider the leaves narcotic. They are somewhat bitter in flavour, and produce a fat, strongly-scented oil. Sir Joseph Hooker, who found two species of the Cynoglossum on the Himalaya Mountains, observed that one kind was there used as a pot-herb.

Our common Hound's-tongue is sometimes found in a less downy condition than ordinary. It is an herbaceous plant, with a stem about one or two feet high. It grows by road-sides and on waste places; and though not rare, yet it is not very frequent.

2. **Green-leaved Hound's-tongue** (*C. sylváticum*). — Stem-leaves lanceolate, broad at the base, sessile, slightly hairy, and rough, especially beneath; upper ones slightly narrowed below, clasping; root-leaves on long

stalks; biennial. This species may easily be distinguished from the last by its bright-tinted foliage, which is more or less shining, and free from soft down, though often very rough. It is besides of different form. The flowers are of reddish colour, changing to blue, and the seeds are without the margin, which is so prominent in those of the other species. The Green-leaved Hound's-tongue is a rare plant, found in shady situations by road-sides, in the middle and south-east of England, and in the neighbourhood of Dublin. Its flowers are in racemes, without bracts, expanding in June and July. It is also known as *C. montanum.*

Order LIX. SOLANEÆ—NIGHTSHADE TRIBE.

Calyx 5-, rarely 4-cleft, inferior; corolla 5-, or rarely 4-cleft, equal or nearly so, imbricate or plaited when in bud; stamens the same in number as the divisions of the corolla, and alternate with them; anthers bursting lengthwise, or opening by pores; ovary 1-, 2-, or 4-celled; style 1; stigma rarely lobed; fruit a 1-, 2-, or 4-celled capsule or berry; seeds numerous. This large and important order consists of herbs or shrubs. Linnæus gave to it the name of Luridæ, from the dull, lurid appearance of the flowers of many of the plants, which he regarded as indicative of their noxious properties. They are acrid and narcotic, several most deadly poisons being found among them, as the Nightshade, Mandrake, Thorn-apple, and others; but several are useful, such as the Tomato, now so largely grown and eaten in this country; the Capsicums, which furnish Chillies and Cayenne-pepper; and in this order is included that most important article of food, the Potato. The species are more abundant in the tropics than elsewhere; but the plants inhabit most regions of the globe except the coldest.

1. THORN-APPLE (*Datúra*).—Calyx tubular, falling early; corolla funnel-shaped, angular, plaited; anthers opening lengthwise; stigma 2-lobed; capsule incompletely 4-celled, 4-valved. Name from its Arabic appellation, *Tatórah.*

2. HENBANE (*Hyoscýamus*).—Corolla funnel-shaped, with 5 unequal lobes; capsule 2-celled, closed by a lid. Name from the Greek *hys, hyos,* a hog, and *kyamos,* a bean, from the form of the fruit.

3. NIGHTSHADE (*Solánum*).—Corolla wheel-shaped, 5-cleft, the segments spreading or reflexed; anthers opening by two pores at the summit; berry roundish, with two or more cells. Name of doubtful origin.

4. DWALE (*Átropa*).—Corolla bell-shaped, with 5 equal lobes; stamens distant; berry of 2 cells. Name from *Átropos,* one of the Fates, in allusion to its deadly properties.

1. THORN-APPLE (*Datúra*).

Common Thorn-apple (*D. stramónium*).—Herbaceous, leaves egg-shaped, unequally and deeply cut, smooth; capsule erect, egg-shaped and spiny; annual. This plant, which is found, though rarely, on waste ground and rubbish heaps, is not a native. Its flowers are trumpet-shaped, large,

white and erect, expanding from July to October. They are succeeded by the large prickly seed-vessel, which is curiously formed, being 2-celled, with each cell again divided by a partition; so that the lower part seems 4-celled. Though naturalized in Britain, the plant is a native of America, and is in Virginia called Fire-weed, because it springs up readily in spots cleared by fire. It is also called St. James'-weed, from the abundance of its growth near Jamestown; and the new settlers in that land having eaten it, experienced such extraordinary effects, that one of its common names indicates it as a plant peculiarly belonging to the Prince of Darkness, the originator of all evil. According to the accounts given by the old historians of Virginia, the new-comers finding this plant in spring, gathered some of the young and tender shoots, which they boiled for their meat; and some of the soldiers sent to quell the disturbances there, ate plentifully of the vegetable. It seems to have produced a most vivacious sort of intoxication, in which the men who ate it committed the most wild extravagances; and, according to the old historians, the influence of the plant remained eleven days, while upon their recovery, the victims of this delirium had forgotten all that had occurred. The love of the marvellous, so prevalent in those days, doubtless led to an exaggerated statement of these effects; but the plant is now well known to be a most powerful narcotic, which, previously to causing stupor, induces a state of wild delirium, in which the person who takes it laughs and talks incessantly. ' The hill tribes of India use the plant as a narcotic, and in some of the mountain villages the seeds are commonly infused in spirituous liquors, for the purpose of increasing their intoxicating properties. The narcotic and poisonous principles of the seeds have long been known and used for criminal purposes in some parts of the Continent, and they are said to be thus used in poisoning by the natives of the Indian Archipelago. In this country these seeds are rarely employed, and we should see nothing of their effects, did it not sometimes happen that children taste them accidentally, when spectral illusions more or less wild are induced. The peculiar principle of the Thorn-apple is called by chemists *daturin*. It exists more or less in all the species, and its general action on the system is much like that of Henbane; when taken internally it strongly dilates the pupil of the eye.

Professor Johnston, in his remarks on the "Narcotics we indulge in," thus refers to this plant: "When the Thorn-apple is smoked, as it is sometimes in this country, by persons afflicted with certain forms of spasmodic asthma, an empyreumatic oil is produced, similar to that which is formed during the burning of tobacco in the pipe of the smoker. Like the empyreumatic oil of tobacco, also, it is very poisonous, so that the effect produced by the smoke of the Thorn-apple upon the system is made up of the joint influence of this poisonous oil and that of the poisonous *daturin*, which may come away with the smoke. Hence the smoking of Thorn-apple, as experience has proved, is by no means unattended with danger."

The Red Thorn-apple (*D. sanguinea*), which grows on the slopes of the valleys of the Andes, is called by the Indians *Yerba de huacca*, or *Borachero*. The Indians prepare a narcotic drink from this plant, and Von Tschudi describes its effects, which are doubtless very like those which would follow a similar use of the common species. Shortly after taking the beverage,

the Indian fell into a heavy stupor, sat with his eyes vacantly fixed on the ground, his mouth convulsively closed, and his nostrils dilated. In a short time the eyes rolled wildly, foam issued from his mouth, and at length he slept for several hours. He then awoke, and a crowd of eager listeners gathered around him as he related the details of his late vision, during which he affirmed he had had an interview with the spirits of his forefathers.

Those human scourges, the Poisoners of India, now nearly extinct, used a species of Thorn-apple in their cruel practices. "The Poisoners," says Sir Joseph Hooker, "all belong to one caste, of Pasie, or dealers in toddy; they go singly or in gangs, haunting the travellers' resting-places, where they drop half a rupee weight of pounded or whole Datura seeds into his food, producing a twenty-four hours' intoxication, during which he is robbed, and left to recover, or sink under the stupefying effects of the narcotic." One of them told this traveller that the Datura seed is gathered without ceremony, and at any time, place, or age of the plant. He was "a dirty, ill-conditioned fellow."

The seeds of the Thorn-apple are believed by some to have been used by the priests of the Delphic temple to procure the wild and frensied utterances of the oracle. According to Professor Lindley, those of *D. sanguinea* were certainly used for a similar purpose in the Temple of the Sun at Sagomozo, which lies among the mountains of the Andes.

The French call the Thorn-apple *Stramonie;* the Germans, *Stechapfel;* the Dutch, *Doornappel;* the Italians, *Stramonia;* the Spaniards, *Estramonio. Stramonium* is from the Greek word signifying Mad-apple, and *Metel*, or *Methel*, is an old Arabic name for the plant, expressive of its narcotic effects. The Chinese are forbidden by law from mingling this plant with their fermented liquors.

The Thorn-apple, naturalized in some degree in England, was introduced (according to Gerarde) into this country from Constantinople about 1597; but Miller says that we probably received it from Italy or Spain. Gerarde mentions that a salve for burns and scalds was made of its leaves; and he tells us that the plant was by him "dispersed through this land." Kalm says of the Thorn-apple, that this and a species of *Phytolacca* are the worst weeds in America; and Professor Martin remarks, that in the earth brought around plants from various parts of that extensive country, we are sure to have the Thorn-apple spring up. The flowers are very graceful and delicate, and are shielded during night by the leaves which surround them, and which rise at that time and enclose them. The whole plant has a strong odour of bean meal, and every part is poisonous. A variety of the common species has been found by Dr. Bromfield at Southsea, with purple stems and flowers.

2. Henbane (*Hyoscyamus*).

Common Henbane (*H. níger*).—Leaves clasping and cut; stem much branched; flowers nearly sessile, axillary; annual or biennial. The flower and the dull foliage of the Henbane would readily suggest to any observant person the probability of the poisonous nature of the plant. Growing on a rounded branched stem, two or three feet high, which, as well as the foliage,

1. COMMON THORN APPLE.
Datura stramonium.
2. COMMON HENBANE.
Hyoscyamus niger.
3. BITTERSWEET.
Solanum dulcamara.
4. COMMON NIGHTSHADE.
S. nigrum.
5. DEADLY NIGHTSHADE.
Atropa belladonna.

Pl. 151.

is covered with long, slender, clammy hairs, the large flowers are arranged in one-sided clusters. They are dingy yellow, marked usually, but not always, with lurid purplish-brown veins, and with purple anthers, expanding from June to August, and diffusing a most disagreeable odour. The plant grows on waste lands, sometimes on the heap of refuse near a dwelling, sometimes among the lowly graves of the churchyard, now and then on some bank by the wayside, or on some tall sea-cliff. The two-celled capsules enclosed in the calyx are covered by a lid, which falls off when the seeds are ripe, and we may sometimes see them in winter macerated by rain and dew, and with little left save a network of woody fibres. The capsule is shaped like a bean, and as swine are said to eat the plant, it is well known by the name of Hog's Bean, and is also sometimes called Black Henbane. The French term it *Jusquiame;* the Germans, *Bilsenkraut;* the Dutch, *Bilsenskruid;* the Italians, *Giusquiamo;* the Spaniards, *Beleno.*

The Henbane is powerfully narcotic, and when taken in any quantity is poisonous to man and to most animals, though both goats and sheep will take a small portion of its foliage, and swine eat it with impunity. No other animals will touch it, and very few of the insect race ever approach its flower or leaf for food. The foliage is the part used in the preparation of the valuable medicinal narcotic which is procured from this plant, and so often administered to the worn and sleepless sufferer; but the seeds are also used. Lightfoot mentions that a man who ate a few of these seeds became insensible and lost the use of his limbs; but they do not seem at all times and with all constitutions to prove so poisonous. Sir J. E. Smith and Professor Martyn both state that they have eaten them without injury, and country children so often play with these seeds that if they were in all cases so noxious, we should certainly more frequently hear of serious consequences. The leaves are often smoked in villages to allay toothache, but the practice is an unsafe one. Anodyne necklaces, made of pieces of the root rounded and strung together, are sometimes worn round the necks of infants to facilitate the process of dentition. Pallas mentions that the seeds of the Purple-flowered Siberian Henbane make, when roasted and infused, an excellent substitute for coffee; and the seeds of another species (*H. datora*) are also roasted for the same purpose by the Arabs, though in this case the beverage is intoxicating.

3. Nightshade (*Solánum*).

1. **Woody Nightshade,** or **Bitter-sweet** (*S. dulcamára*).—Stem shrubby; leaves egg-shaped and heart-shaped; upper leaves halberd-shaped and eared; flowers in drooping clusters; perennial. This plant, which is in some cases quite smooth, in others more or less hairy, is to be found in many of our hedges, especially such as are near streams. The glistening scarlet berries which hang on its boughs are, during October and November, far more conspicuous than the flowers of June and July. The blossoms are lurid purple, with two green spots at the base of each segment, and the yellow anthers are united into a pointed cone. The clusters hang opposite to the leaves, and the latter are dull green; while the straggling woody stems grow among the bushes, and are often eight or ten feet in length. The plant has

always been used medicinally in villages, and the external application of a decoction of its leaves has been employed with good effect; but as stem, leaves, and fruit all contain poison, its administration internally, except by qualified persons, is highly dangerous. The plant is in some places called Felon-wood, not improbably from some old use as a cure of whitlows, as these were formerly called felons. The roots have the odour of the potato, and are, when first chewed, bitter, but leave afterwards a taste of sweetness on the tongue; hence the specific name of the plant. The French call this Nightshade *Morelle;* the Germans, *Schwarze Nachtschatten;* the Dutch, *Zwarte nagtschade;* the Italians, *Solatro nero.* Bytterswete is a very old English name for this plant. A variety (*marinum*) occurs on the south coast with a prostrate stem and fleshy leaves.

2. **Black Nightshade** (*S. nigrum*).—Stem herbaceous; leaves egg-shaped, wavy at the edge, and bluntly toothed; flowers drooping; annual. This species is named from the round berries, which, when ripe, are of a black hue. The flowers have white petals and yellow anthers, and may be seen on the plant from June to October. This Nightshade often occurs as a weed in gardens, and is not uncommon on wayside banks, sea-beaches, and other uncultivated spots. Mr. Borrer found in Sussex a variety with the flowers white, but in which the berries were green. The whole plant is fetid and narcotic, and the fruits, though they have been used medicinally, possess, in our country at least, some poisonous properties. This plant, however, seems to be in this respect much influenced by climate; for Mr. Backhouse tells us that in Norfolk Island the convicts commonly gather these berries and cook them. Nor is it only in that climate that they seem to lose their virulence. In the "Bulletin des Naturalistes de Moscou," it is stated that the berries of the *Solanum nigrum* are, in the Ukraine, destitute of the narcotic principle, and as they ripen become sweet and edible. Czerniaiew, the Russian writer who mentions this circumstance, endeavours to account for it by the high summer temperature of the Ukraine.

4. Deadly Nightshade (*Atropa*).

Dwale, or Deadly Nightshade (*A. belladónna*).—Stem herbaceous; leaves egg-shaped, undivided; flowers axillary, on short stalks; perennial. This is a rare plant, and, as its name imports, is so poisonous that we cannot wish it were more frequent. Its stem is round, branched, slightly downy, and three or four feet high, bearing from June to August drooping bells of a dark lurid purple hue, which have a faint but unpleasant odour. The leaves are large, sometimes a foot long, and four or five inches broad, and the whole herb has a dull gloomy appearance. Not one of our British plants is so deadly as this, for its black shining juicy fruits, like small cherries, are highly poisonous, and produce fatal effects, even if a very small portion be taken. The calyx attached to these berries readily distinguishes them from cherries, but fatal mistakes have occurred in their use by the ignorant. Some years ago a man was prosecuted for selling these berries in a basket about London, and though it appeared that he was unacquainted with the dangerous nature of the fruits, yet several persons suffered in consequence. Children have sometimes died through eating these sweet berries, and doubt-

less accidents would be more frequent but for the rareness of the plant, which has probably been in a measure extirpated by botanists and herbalists of former years. Its chief place of growth is in old quarries, or among ruins; but it is sometimes to be found in woods and hedges. The old name of the plant, Dwale, is apparently a corruption of the French *deuil*, mourning; and early English botanists called it Banewort, Sleeping Nightshade or Raging Nightshade, while its old French name was *Morelle mortelle*. Nor is the poison confined to the berries. A few grains of the dried leaves, or a small dose of the infusion of these leaves, will shortly cause dryness of the throat, and a most extravagant delirium, often accompanied by uncontrollable fits of laughter, sometimes with incessant talking, but in some instances by a total loss of the voice. The state of mind induced by taking it somewhat resembles somnambulism; and a case is mentioned by Morehouse, in his work on "Intoxicating Liquors," of a man who was for fifteen hours speechless and insensible to external objects, but who, meantime, went through all the operations of his trade with great assiduity, and moved his lips as if in conversation

This plant is interesting to the historical reader from the narrative respecting it given by Buchanan, the historian. This author relates that the Scots under Macbeth, being desirous of poisoning the Danes, treacherously took the opportunity, during a season of truce, to mix the poisonous Nightshade with the ale with which they had agreed to supply them. The army of Sweno slept soundly, and their enemies then destroyed them during their helplessness. Our great dramatist is believed by many to have alluded to this plant when he represents Banquo as asking, "Or have we eaten of the insane root that takes the reason prisoner?" Professor Burnett remarks: "Even in earlier times the paroxysms of madness which were brought on by it seem, as indeed well they might, to have challenged the wonder of observers; for it is supposed, and not without reason, to be the plant eaten by Marc Antony when distressed for provisions, and the strong effects of which are recorded by Plutarch in his account of the Parthian war. He says, those who sought for herbs obtained few that they had been accustomed to eat, and, in tasting unknown herbs, they found one that brought on madness and death. He that had eaten of it immediately lost all memory and knowledge, but at the same time would busy himself in moving every stone which he met with, as if he was engaged on some very important pursuit."

Our oldest poets refer frequently to the somniferous properties of this Nightshade. Thus Chaucer says—

> "Arise, quod she; what, have ye dronken Dwale!
> Why slepen ye? it is no nitertale."

A strange use for this plant is mentioned in a volume of miscellaneous collections, once belonging to William of Worcester, Sloane MS.: "For to take alle maner of byrdys. Take whete or other corne, and take guse of Dwale and menche the corne therein, and ley it by the byrde's hawnteyne; and when they have eaten thereof, they shall slepe that ye may take them with your handys." Gerarde was well aware of its powerful properties, for he says, "If you will follow my counsell, deale not with the same in any

case, and banish it from your gardens and the use of it also, being a plant so furious and deadly; for it bringeth such as have eaten thereof into a dead sleepe, wherein many have died."

The *Belladonna* has been, in our times, recommended as a preventive against scarlet fever; and Professor Burnett says, that it does really seem to render persons insusceptible to that disorder. Its power of dilating the pupil of the eye renders this plant very serviceable to the oculist in his delicate operations on that organ, and this Nightshade is often applied externally in painful maladies. No part of the plant possesses any odour indicative of its poisonous nature, though this might be inferred from the lurid hue of its flowers. The juice of the ripe berries gives to paper a beautiful and durable tint of purple; and a cosmetic made in former days by the Italian ladies from its juices, procured for the plant the name of *Belladonna*. The Germans probably used it in the extermination of wolves, for they call it *Wolfskirsche*, wolf's cherry.

Order LX. OROBANCHEÆ—BROOM-RAPE TRIBE.

Calyx variously divided, not falling off; corolla irregular, usually 2-lipped, imbricated in the bud; stamens 4, 2 long and 2 short; anthers often pointed or bearded at the base; ovary in a fleshy disk, many seeded; style 1; stigma 2-lobed; capsule 2-valved; seeds very minute, numerous, attached to the valves of the capsule in 2—4 rows. This order consists of herbaceous plants, which are parasitic on the roots of other vegetables. They are succulent and leafless, of a dingy red or brown colour, with large flowers of dull brown, yellow or purple, arranged in a spike on the upper part of the stem.

1. BROOM-RAPE (*Orobánche*).—Calyx of two pairs of sepals, sometimes with a small fifth, and often combined in front with 1—3 bracts at the base; corolla gaping, 4—5-cleft, not falling off. Name from the Greek *orobus*, a vetch, and *agche*, to strangle, from the injurious effects produced on the plants to which they attach themselves.

2. TOOTHWORT (*Lathræa*).—Calyx bell-shaped, 4-cleft; corolla gaping, 2-lipped, the upper lip arched, entire, not falling off. Name from the Greek *Lathraios*, hid or concealed, because the plant often grows among dead leaves. By some authors this genus is included in the order Scrophularineæ.

1. BROOM-RAPE (*Orobánche*).

* *Bracts one to each flower; stem simple.*

1. **Greater Broom-rape** (*O. májor*).—Stem simple; corolla inflated at the base in front, curved on the back; upper lip slightly notched; lower one in three segments, the middle lobe twice as large as the lateral ones; stamens inserted near the base of the corolla, smooth below, their upper part and the style downy; perennial. The wanderer over the heath-land, who, though he may not be a botanist, yet loves to mark the wild flowers there, is often arrested by the peculiar appearance of this plant. The botanist would at once guess that it was a parasitic plant, from its leafless succulent condition

1. GREATER BROOM RAPE
Orobanche major.
2. CLOVE-SCENTED B. R.
Ocaryophyllacea.
3. RED B. R.
Orubra.
4. TALL B. R.
Oelatior.

Pl. 152.

and dingy hue. Many, on first looking on it, have believed it to be the remains of a flower from which the summer's sun had withered away all the beauty. The stem, swollen at the base, would lead one to suppose it to be the crown of the root, and the scales upon the stem serve on the upper portion as bracts, one occurring under each corolla. Stem, scales, and flowers, all have much similarity in hue, being tinted with reddish-brown; but the blossoms have besides a tinge of purple and dull yellow. They grow in a long close spike, expanding from May to July. We have seen specimens of the plant two feet and a half high, and the stem thick as a walking-stick; but it is more commonly a foot, or a foot and a half in height. It is very clammy to the touch.

The Broom-rapes, of which there are several species, are very difficult of discrimination, and authors are much divided as to the exact number of really distinct forms. Parasitic plants become much altered, too, by the substance of the plants on which they feed, so that it requires much attention to ascertain how far any distinctions are permanent. The whole family are parasitic on the roots of other vegetables, each species preferring its own peculiar aliment. It has been proved by experiments, that their seeds will lie dormant in the soil for years, until the plant to which the species attaches itself shoots out its roots near them, when they immediately seize upon them, often to the very great detriment of the foster-plant. The Greater Broom-rape is by no means unfrequent on gravelly heaths, selecting the roots of various species of the Leguminous tribe, especially shrubby plants. Mr. Loudon says, that any of the Broom-rapes may be made to grow in the garden on the furze and broom; and this large species is more often, when wild, found on these than on any other plants. It has the old name of *Herba leonina.*

The Broom-rapes have all a degree of acridity, and some astringency and bitterness. They were formerly used in medicines, and their juice was believed to cure agues and toothache, and to remove freckles or sunburn. They have in country places the old name of Strangleweed, and the species are more or less frequent throughout Europe, as well as in other quarters of the world. Sir Joseph Hooker found the *Orobanche indica* swarming in Bengal over broad acres of flax and rape. The French and Italians call the Broom-rape *Orobanche;* the Germans *Erbsenwürger;* and the Dutch, *Leeuwstaart.*

2. **Clove-scented Broom-rape** (*O. caryophyllácea*). — Sepals many-nerved, lanceolate, equally 2-cleft, shorter than the tube of the corolla, touching each other, or combined in front; corolla bell-shaped, curved on the back, upper lip broad, 2-lobed, lower 3-lobed, the segments blunt, nearly equal, wavy; stamens hairy below, above, together with the style, invested with glandular down; stigma blackish-purple; perennial. This species is very rare in this kingdom, being found only in South Kent, where it grows on the roots of the great hedge bedstraw (*Galium mollugo*). It occurs, however, in some continental countries, and has been seen in Siberia and Italy, and has attracted the attention of the Asiatic traveller on the mountains of the Himalaya. The general habit and size of this plant is pretty much the same as that of the Greater Broom-rape, but it differs from it in having

the three segments of the lower lip obtuse, and much more fringed and curled. A still more striking feature of distinction consists, however, in the lower part of the stamens being thickly clothed with hairs on the inside, whereas that part in *O. major* is smooth; the dark purple stigma, too, of this species affords another characteristic, as that of *O. major* is yellow. To one unaccustomed to mark these minute characters, the fragrant odour of cloves would at once indicate this rare flower when nearly expanded; and Gerard E. Smith says, the scent is remarkably developed if it be flowered in water. The plant is variable in height, colour, and the number of its blossoms: its prevailing hue is a dusky purple; but it occurs also of a yellowish-brown, or nearly white. The author just alluded to says in his work on the rare flowering plants of South Kent, "The spikes are obtuse, scantily clothed with from ten to sixty flowers; the stem is flexuose and fragile, hollow, with much white pith." It grows, he says, in hedges and waste grounds, below Cæsar's Camp Hill, the Sugar-loaf Hill in Eastwear Bay, near Lydden Spout, and eastwards to Dover.

3. **Red Broom-rape** (*O. rúbra*).—Sepals 1-nerved, pointed, longer than the tube of the corolla, undivided; corolla slightly curved externally, having the upper lip covered within with glandular down; lips toothed and curled, upper one 2-lobed, lower one 3-lobed; stamens slightly hairy below, their upper part and the upper part of the style having glandular hairs; stigma light red; perennial. This plant, which is found chiefly along the west coasts of England and Scotland, and in Ireland, is parasitic upon the common thyme. It is slightly fragrant.

4. **Tall Broom-rape** (*O. elátior*).—Sepals many-nerved, equally 2-cleft, as long as the tube of the corolla, connected in front; corolla curved, limb spreading, unequally toothed, wavy; upper lip 2-lobed, lower 3-lobed, the segments nearly equal, acute; filaments smooth above, glandular, hairy below; stigma of 2 lobes of brownish-yellow; perennial. This is a rare species, having less of the reddish or purplish brown tint than the preceding, and being altogether of a duller, yellowish hue. The stem is two or three feet high; and the plant, which flowers from June to August, is rare, but found in several parts of England, growing on the roots of the great knapweed (*Centaurea scabiosa*).

5. **Lesser Broom-rape** (*O. minor*).—Sepals many-nerved, broad below, suddenly narrowing into one or two acute points, as long or longer than the tube of the corolla; corolla curved; lips bluntly toothed, wavy, upper lip 2-lobed, lower of three roundish lobes; stamens hairy below; style nearly smooth; lobes of the stigma purple, and nearly distinct; annual. This species, which occurs chiefly on the common red clover, is, however, parasitic on various other plants. In Norfolk, Kent, Surrey, and some other counties, it is often very abundant on the clover-fields; but, unlike most of the species, it does not seem greatly to injure the crop which it infests, though, of course, it occupies some room on the soil. It has not, at any rate, the effects which the ancients ascribed to all the species, which they disliked not alone for the space which they occupied in their fields and the nourishment which they took from the foster plants, but also from the notion that they imparted to them a deleterious property. Hence the Greeks rejected beans on which the

1. PICRIS BROOM RAPE.
   Orobanche picridis.
2. LESSER B. R.
   O. minor.
3. IVY B. R.
   O. hederæ.
4. PURPLE B. R.
   O. cærulea.
5. BRANCHED B. R.
   O. ramosa.
6. GREATER TOOTHWORT.
   Lathræa squamaria.

Broom-rape had attached itself, believing them to be unwholesome. A variety of this, and called by some writers the Bluish Broom-rape (*O. amethystea*), is parasitical upon the sea-side carrot along the south coast from Cornwall to Kent. It apparently differs only by having the corolla curved, and the lobes of the purple stigma growing in a straggling manner.

6. **Picris Broom-rape** (*O. picridis*).—Sepals 1—3-nerved, entire, or toothed in front, below gradually narrowed into one or two sharp points; corolla swelled at the base, slightly curved at each end, nearly straight at the back; lips toothed, wavy, upper without notches, lower of three roundish lobes, the middle one the largest; stamens hairy in their lower half within; style glandular below, in front, and throughout on its upper half; stigma lobed, purple; anthers purple or yellowish; annual. This rare species is found in the Isle of Wight, in Cambridgeshire, Kent and Surrey, flowering in June and July on the yellow Picris. Many authors doubt if it is really distinct as a species, and regard it as a sub-species or a variety of *O. minor*.

7. **Ivy Broom-rape** (*O. hederæ*).—Sepals 1-nerved, broad below, suddenly contracting into 1—2 awl-shaped points, nearly as long or longer than the tube of the corolla; corolla curved; lips toothed, wavy, upper lip 2-lobed, its sides straight, lower of three roundish nearly equal lobes; stamens smooth, slightly hairy below; style smooth, or with a few hairs on the upper part; stigma yellow, scarcely lobed; perennial. This form, which has a purplish stem, is parasitical upon the ivy in the south and west of England and Wales, and at Muckross Abbey, and some other Irish localities. It is most abundant on the ivy in the neighbourhood of Dublin, and has been planted on that evergreen in the Botanic Gardens of Glasnevin with success. Many botanists believe it to be but a form of *O. minor*, from which it differs chiefly by its yellow stigma, which has its lobes attached together, instead of being nearly distinct.

* * *Bracts three under each flower; stems in some species branched.*

8. **Purple Broom-rape** (*O. cærulea*).—Stem simple; calyx with five short acute teeth; corolla tubular, curved in front, middle of the tube compressed, upper lip of the corolla cloven, lobes of the lips acute, with rolled margins; anthers smooth; style downy; stigma scarcely 2-lobed, white. This is a rare species, growing in grassy pastures, especially near the sea. It has been found in Hertfordshire, Cornwall, and the Isle of Wight, but is less rare in Norfolk than elsewhere. It flowers from June to August; the stem, scales, bracts, calyx, and corolla are all slightly downy, and the flowers incline more to purplish-blue than in any other species.

9. **Sand Broom-rape** (*O. arenária*).—Stem simple; calyx with five short awl-shaped teeth; corolla tubular, nearly straight, the middle of the tube compressed at the back, throat slightly inflated, upper lip cloven, lobes of the lips blunt, rolled back at the margin, lower lip hairy within, line down the anthers hairy; perennial. This rare species, or probably sub-species of *O. cærulea*, is found at Alderney, in the Channel Islands, where it is parasitical on the common yarrow.

10. **Branched Broom-rape** (*O. ramósa*).—Stem branched; calyx with four triangular egg-shaped pointed teeth; upper lip of corolla deeply cloven;

anthers smooth; annual. This very rare plant occurs casually on the roots of hemp in Norfolk, Suffolk, and some other counties; but it is not a native. It is altogether of much paler colour than most of the species, and its stems are usually branched. It flowers in August and September.

The beauty of some of the Broom-rapes of other countries has induced many persons to attempt their cultivation. The culture of parasitic plants has, in many cases, been found difficult. Dr. Berthold Seeman remarks, that the species of loranthus of tropical and sub-tropical regions are most beautiful plants, bearing, instead of the inconspicuous flower of our mistletoe, blossoms of the brightest scarlet and yellow colours, and often averaging more than eight inches in length. He adds, "What gardener has ever looked over the plates, even of our European Floras, or herborised on any part of the British Isles or the Continent, who has not been struck with some of the Broom-rapes, and regretted his inability to rear these rivals of Orchideæ in the establishment under his care?" It has, however, been found possible to cultivate this tribe of plants, and several of the European species have been reared with success in the Botanic Garden of Göttingen. A writer in the *Gardener's Chronicle*, in December, 1853, remarks, "Professor Barthing, the learned director of the Göttingen Garden, collected, some years ago, seeds of all the Orobanches which he could procure; and sowing them in pots upon the roots of those plants to which they are partial, he had the satisfaction of seeing them spring up and produce their elegant flowers. The experiment is easily imitated; but he who is about to attempt it should make himself perfectly acquainted with the mode of growth of each individual species which he has determined to raise. Some of them, for instance, will be found attached to the extremities of the roots; others close to the main stem of the plants." Unless these points are attended to, the seeds of the Broom-rapes may remain for years in the soil without vegetating. A later writer in the same journal stated that living parasites were then growing well in the Botanic Garden of Glasnevin; and that Broom-rapes, toothworts, dodders, and other parasitic plants usually deemed difficult of culture, succeeded well in a small town garden known to the writer, though in these cases the plants had not been reared from seed, but by a kind of root-grafting.

2. Toothwort (*Lathræa*).

Greater Toothwort (*L. squamária*).—Flowers drooping in 1-sided racemes, lower lip of the corolla 3-cleft; bracts broadly egg-shaped or lanceolate; perennial. This parasite is not to be found, like the broom-rape, growing beneath the broad sunshine, for it springs up in the recesses of the summer woodland. It attaches itself there to the roots of the elm, hazel, or other trees; and, though a rare plant, occurs in various parts of England, Ireland, and Scotland. It is a juicy, leafless plant, with many fleshy, tooth-like scales, often, but not always, colourless. The leafless parasites have usually the singular property of never developing any bright colours or assuming any green tint. The Toothwort, however, when exposed to a greater degree of light than that under which it is ordinarily found, becomes much affected in hue by the circumstance. Mr. Dovaston, who planted this parasite on the roots of the hazel, tells us that just as he had despaired of

the result, he succeeded in making it grow. He remarks: "It was four years, and in some cases five, before it came up visibly. I gathered the seeds in Erddig woods, where you may remember we saw it in great luxuriance. It will, however, turn pink or purple when very much exposed to the light; for having cut away some of the hazel branches to bring it more in view of the walk, the sunbeams, in a few days, turned it so very pinky and purple, that some ladies were very much struck with the beauty and delicacy of the colours, though the plant itself is rather of a repulsive and cadaverous aspect." Like other leafless parasites, however, the plant seems to have the peculiar property of resisting the action of light, towards which all the green portions of a soil-sustained plant irresistibly turn, as we may see in those of our windows and greenhouses. The Toothwort, when its flower-stems have acquired their full height, is not always erect, and it branches from the very base. It sometimes grows in little circular groups of twenty or thirty plants together. The flowers, which are ranged down one side of the stem, are as often turned from the only side on which the light can enter as towards it. The flowers are sometimes dull, pale purple, or pink; sometimes of a brownish or pinkish white. They have broad bracts at their base, and expand in April and May, the pale stem rising from among the withered leaves of the last autumn to about a foot high; the branches or stems at its base being either below the leafy mass, or frequently beneath the surface of the soil. The subterranean stem has on it a number of scales, which in size, shape, and colour have a very remarkable resemblance to the human front-tooth, and suggested the specific name of *Squamaria* (from the Latin *squama*, a scale), as well as the English Toothwort; and, of course, the herbalists accepted the resemblance as proof that the plant was a cure for toothache.

The French call this plant *La Clandestine;* the Germans, *Schuppenwurz;* the Dutch, *Schubwortel;* the Spaniards, *Madrona;* the Portuguese, *Dentaria bastarda.*

END OF VOL. II.

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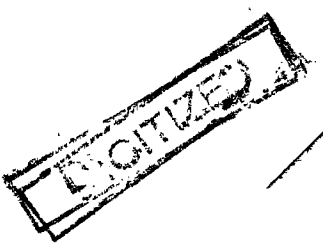

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